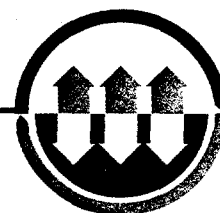
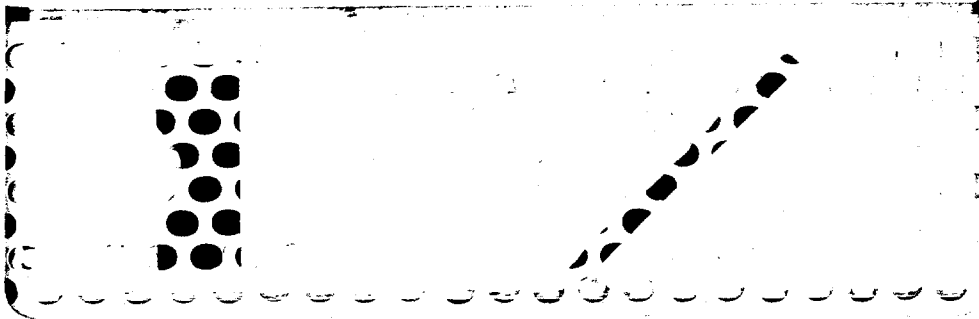


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SECOND QUARTER MONITORING REPORT
APRIL TO JUNE 1996
KIN-BUC LANDFILL OPERABLE UNITS 1 AND 2

Prepared for
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August 1996

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EXECUTIVE SUMMARY

The Kin-Buc Landfill Site is a closed 200-acre industrial/commercial landfill located in Edison, New Jersey, which operated under a New Jersey Department of Environmental Protection (NJDEP) permit until 1976. The USEPA placed the Kin-Buc Landfill on the National Priorities List (NPL) in 1981. Between 1983 and 1988, the respondents conducted a Remedial Investigation/Feasibility Study (RI/FS) which resulted in a Record of Decision (ROD) by USEPA in 1990 which called for source control of Operable Unit 1 (OU1), and a second RI/FS to determine the nature and extent of contamination outside the source area, thus defining Operable Unit 2 (OU2). Following the completion of this RI/FS, a second ROD was issued for OU2 in 1992.

Operable Unit 1 includes both Kin-Buc I and II Mounds, the former Pool C Area and a portion of the Low-Lying Area between Kin-Buc I and the Edison Landfill. The remedial action specified in the ROD for OU1 included the construction of a slurry wall around OU1, the collection and treatment of leachate and groundwater from within the containment area and the capping of the area within the slurry wall. OU2 includes Mound B, Edmonds Creek and adjacent wetlands, the remaining Low-Lying Area between OU1 and the Edison Landfill, Martins Creek and the Raritan River. The OU2 ROD called for the excavation and disposal of PCB-contaminated sediments from within the Edmonds Creek Marsh Area, the restoration of disturbed wetland areas and groundwater/surface water monitoring. Remedial construction activities for both OU1 and OU2 were completed by the end of August 1995. In accordance with the RODs, water quality, hydraulic, landfill gas and wetlands monitoring is required to evaluate the effectiveness of the remedial actions. This report documents the results of 1996 Second Quarter monitoring activities.

The OU1 groundwater monitoring well network consists of wells located on either side of the slurry wall to monitor water quality and elevations in the three different hydrogeological units. The OU2 groundwater and surface water monitoring network also provides for water quality monitoring in the three water-bearing zones (refuse, sand/gravel and bedrock). The OU2 monitoring program is designed to monitor water quality and elevations in the Low-Lying Area, Mound B and the Raritan River following the containment of OU1.

The key findings made during the Second Quarter of 1996 are summarized as follows:

- Dissolved metals analysis in the OU1 refuse and bedrock wells indicates concentrations of the select metals are generally higher inside the slurry wall than outside. At Transect Location Nos. 2 and 5 in the refuse and at Transect Location No. 5 in the bedrock, all the metals concentrations were higher inside the wall than outside the wall. In the sand and gravel wells in OU1, metals concentrations were similar across the wall or slightly greater inside than outside the wall.
- General chemistry analysis in the OU1 refuse, sand/gravel and bedrock wells indicates concentrations of the indicator parameters were generally higher inside than outside the slurry wall. At Transect Location Nos. 2 and 3 in the refuse, all the general chemistry parameters were higher inside than outside the wall. At Transect Location Nos. 2, 3 and 5 in the sand and gravel, nearly all the general chemistry parameters were higher inside than outside the wall. At Transect Location No. 5 in the bedrock, all the general chemistry parameters were higher inside than outside the wall.
- Overall water quality in the three hydraulic zones of OU2 was observed to be better than the respective units of OU1 wells inside the slurry wall during the Second Quarter of 1996. In the OU2 refuse wells, the concentrations of dissolved metals were similar or less than the levels evidenced by OU1 wells situated outside the wall. In the OU2 sand and gravel wells, metals concentrations varied. Sodium was detected at 3020000 ug/l at WE-10S and lead was not detected in any sand and gravel well except GEI-6S. Lead was not detected in any OU2 bedrock monitoring well.
- General chemistry analysis in the OU2 refuse and sand/gravel wells indicates similar concentrations to the OU1 wells in like hydrogeologic units outside the slurry wall. In the bedrock monitoring wells, indicator parameter concentrations were generally less than the levels evidenced by OU1 bedrock wells outside the slurry wall.
- Two months of continuous water level monitoring data indicates that generally intragradient conditions are being maintained within the refuse unit of OU1 across the slurry wall. Based upon the May manual water level monitoring results, an upward vertical gradient in the OU1 refuse unit inside the slurry wall is not generally evidenced.
- At the upgradient OU2 bedrock monitoring location, WE-114D, certain metals concentrations were elevated relative to downgradient OU2 wells while indicator parameter concentrations were generally less than downgradient OU2 wells. Metals and general chemistry analysis in WE-10S and WE-10R indicate that the water quality at that location is unique relative to other OU2 wells.
- No observable impact to the Raritan River water quality from OU2 was noted based on the Second Quarter of 1996 sampling results.

- Combustible gas was not detected in any of the six gas monitoring wells located on the north side of OU1. Monitoring at the operational flare port inlet indicates that the landfill gas collection system is delivering sufficient levels of combustible gas (methane) to promote proper combustion at the flare.
- Wetlands restoration monitoring for the Second Quarter of 1996 indicates that initial plantings to establish cordgrass (Spartina alterniflora), have been unsuccessful. Other native, non-phragmite opportunistic species have begun to recolonize the remediated zones, and the overall appearance of the Edmonds Creek Marsh Area has been enhanced.

1 INTRODUCTION

1.1 Purpose of Monitoring

The purpose of the monitoring program is to evaluate the effectiveness of the Operable Units 1 and 2 (OU1/OU2) Remedial Design/Remedial Action (RD/RA). The Second Quarter 1996 monitoring provides water quality data, hydraulic monitoring data and wetlands restoration monitoring information following the implementation of the OU1 and OU2 remedies.

1.2 Purpose of Report

The purpose of this report is to present the OU1 and OU2 monitoring program findings for the Second Quarter of 1996. The data obtained during this monitoring period will be used to supplement a database that documents analytical results, hydraulic monitoring, and wetland restoration efforts. The report comments on groundwater quality and hydraulic control for OU1 inside and outside of the circumferential soil-bentonite slurry wall, which will be used to evaluate the performance of the slurry wall as a hydraulic barrier. Operable Unit 2 groundwater quality monitoring will document water quality in the Low-Lying Area and Mound B after containment of OU1. Wetland restoration will document the Edmonds Creek Marsh Area (ECMA/OU2) remediated zones 1 through 5 wetland structure and function. Surface water quality of the Raritan River is also examined relative to site groundwater quality.

1.3 Site Background

The Kin-Buc Landfill Site is a 200-acre closed industrial/commercial landfill located at the end of Meadow Road in Edison, New Jersey. The site is bordered by the Edmonds Creek Marsh Area (ECMA) to the east, the Edison Landfill to the south, the Raritan River to the west, and industrial use to the north. The Kin-Buc Landfill was used for the disposal of municipal, industrial, and hazardous waste as early as 1947. The largest volumes of waste apparently consisted of industrial waste material, wastewater/liquid and sludge. It was a New Jersey state-approved (NJDEP) landfill between 1971 and 1976. In 1976, the NJDEP revoked Kin-Buc's operating permit upon United States Environmental Protection

Agency (USEPA) investigation. In 1981, Kin-Buc was placed on the CERCLA Superfund National Priorities List (NPL).

A Record of Decision (ROD) issued in September 1990 by the USEPA to the Respondents, mandated a Remedial Design/Remedial Action (RD/RA) for Operable Unit 1. The Remedial Action construction was implemented between March 1994 and August 1995, and included the construction of a circumferential slurry wall, collection and treatment of leachate and groundwater from within the slurry wall containment area and construction of a low permeability final cover system (Blasland, Bouck & Lee, September 1995, Revised February 1996).

A separate ROD was issued by the USEPA to the Respondents in November 1992 for Operable Unit 2. The Remedial Action for OU2 included the excavation of PCB-contaminated sediment from within the ECMA, disposal of the excavated material within the OU1 slurry wall, and restoration of excavated wetlands. Operable Unit 2 Remedial Action was substantially completed in July 1995 (Blasland, Bouck & Lee, September 1995, Revised February 1996).

1.4 Second Quarter Monitoring Activities

Monitoring and sampling for the Second Quarter 1996 (April to June) took place according to the procedures and methods outlined in the Draft Operations and Maintenance (O&M) Manual for the Kin-Buc Landfill prepared on behalf of the Respondents by Wheelabrator EOS in September 1995 as modified by letter to EPA dated February 28, 1996. The modified hydraulic monitoring program will be approved by the EPA upon final approval of the Draft O&M Manual. Continuous water level monitoring was initiated for the Second Quarter 1996 on April 25, 1996, with the installation of 16 In-Situ "Trolls" in the OU1 refuse and sand/gravel wells. The "Trolls" have generated 2 months of water level data that are evaluated in Section 4 of this report.

The groundwater and surface water monitoring program in the Operations and Maintenance Manual was based on the OU1 Remedial Design/Remedial Action Groundwater Monitoring Plan and the OU2 Closure Plan Final Addendum No. 1 (Wehran Engineering Corporation, December 1992 and August 1994).

The groundwater and surface water samples for the Second Quarter 1996 were analyzed by EMCON's subcontract laboratory, NYTEST Environmental (NJ Certification No. 73469) for the analytes listed in Table 1-1, for the quarterly monitoring parameters in accordance with the methods specified. Fecal, strep, and total coliform analysis was not performed on some samples received at the laboratory on the second day of sampling (May 15, 1996). The appropriate containers were filled in the field, but because of laboratory error the sample analysis was not performed. The well locations without results are indicated with an N/A on the analytical data presentation tables. A total of

41 groundwater monitoring wells, 4 surface water locations, and 6 gas monitoring wells were sampled over a 3-day field effort on May 14, 15, and 16, 1996. Any purge water or development water associated with sampling efforts was containerized in a mobile tanker and disposed of at the treatment plant or at the various leachate collection system cleanouts located around the perimeter of the site.

For OU1, samples were collected from 26 new monitoring wells installed during Operable Unit 1 Remedial Construction Activities. The 26 wells are located at 5 transects across the OU1 slurry wall as shown on Drawing 1, and listed in Table 1-2.

The groundwater monitoring system for OU2 consists of 5 monitoring well triplets in the Low-Lying Area and Mound B, as shown on Figure 1-1, and an upgradient location north of OU1, as shown on Drawing 1. Of the total 16 monitoring wells, 15 were sampled for the Second Quarter 1996. One well, GEI-7G, was dry at the time of sample collection. Four surface water monitoring locations sampled during low tide in the Raritan River adjacent to Mound B are indicated on Figure 1-2. The groundwater and surface water monitoring network for OU2 is listed in Table 1-3.

Semi-annual wetlands restoration monitoring was conducted on July 18, 1996. Plot sampling, fixed point photographs, and general observations of wetland structure and function were performed. The Wetlands Restoration Monitoring Progress Report can be found as Appendix G.

2 DESCRIPTION OF MONITORING PROGRAM

2.1 Operable Unit 1

The groundwater monitoring system for Operable Unit 1 is located in the component areas consisting of:

- Kin-Buc I Mound
- Kin-Buc II Mound
- Pool C Area
- Low-Lying Area contained by circumferential slurry wall

The groundwater monitoring well network (Table 1-2), consists of 10 wells screened in the refuse/fill, 6 wells screened in the sand and gravel, and 10 wells screened in the bedrock. The OU1 monitoring well network is designed to monitor groundwater quality and elevations inside and outside of the slurry wall to evaluate the performance of the slurry wall as a hydraulic barrier. The monitoring wells are located along 5 transects which are installed in pairs to monitor the same hydrogeologic units across the slurry wall, so that water quality and elevations on either side of the wall can be evaluated. The well pairs are indicated in Table 1-2.

At three transects, the monitoring wells are installed as pairs that monitor the refuse, sand/gravel, and bedrock units. These locations are:

- Transect Location No. 2: W-3G/W-4G, W-3S/W-4S, W-3R/W-4R
- Transect Location No. 3: W-5G/W-6G, W-5S/W-6S, W-5R/W-6R
- Transect Location No. 4: W-7G/W-8G, W-7S/W-8S, W-7R/W-8R

Two transects have monitoring wells installed as pairs in the refuse and bedrock units due to the absence of sand and gravel deposits in those areas of the site. These locations are:

- Transect Location No. 1: W-1G/W-2G, W-1R/W-2R

- **Transect Location No. 5: W-9G/W-10G, W-9R/W-10R.**

A discussion of groundwater quality observations follows in Sections 3.1 through 3.3 for each hydrogeologic unit.

2.2 Operable Unit 2

The groundwater and surface water monitoring system for Operable Unit 2 monitors groundwater quality in the Low-Lying Area and Mound B, following containment of OU1, as well as the water quality of the Raritan River that may be attributable to site contaminants. The groundwater monitoring well network is listed on Table 1-3 and consists of 5 wells screened in the refuse, 5 wells in the sand and gravel, and 6 wells in the bedrock (including 1 upgradient bedrock location). The locations of the wells were chosen based on prior groundwater quality data and anticipated groundwater flow direction, following installation of the OU1 slurry wall. Figure 1-1 depicts the monitoring well locations.

The surface water monitoring network, which is also listed on Table 1-3, consists of four locations in the Raritan River adjacent to Mound B. The upstream sampling point (RR-01) is located downstream of the confluence with Mill Brook/Martin's Creek. Two other sampling points are adjacent to Mound B (RR-02 and 03). The fourth monitoring location (RR-04) is located downstream of the OU1 leachate treatment plant discharge. Figure 1-2 depicts the surface water monitoring locations.

A discussion of groundwater quality observations follows in Sections 5.1 through 5.3 for each hydrogeologic unit. Surface water results are discussed in Section 5.4.

Wetlands restoration monitoring in the Edmonds Creek Marsh Area (ECMA) consists of belt transect and fixed point photograph locations. The results of monitoring in the ECMA can be found in the Wetlands Restoration Monitoring Progress Report provided as Appendix G. The belt transects and photograph locations are indicated on Drawing 2 provided with Appendix G.

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3 OU1 GROUNDWATER QUALITY

Groundwater quality results for the OU1 monitoring wells are summarized in Table 3-1. The database includes select metals and general chemistry parameters. The analytical report is provided in Appendix A. Field data sheets are provided in Appendix B. QA/QC sample results for OU1 are provided in Appendix C.

3.1 Refuse Wells

The inorganic constituents, sodium and zinc, were evidenced in lower concentrations in the refuse wells at all transects at the outside paired wells across the slurry wall. At Transect Locations No. 2 and 5, all metals detected (copper, iron, lead, sodium, zinc) were at lower concentrations outside the wall than inside the wall. At Transect Location No. 4, only iron at 41,000 ug/l in well W-8G outside the wall was noted at a higher concentration than well W-7G inside the slurry wall. At Transect Location No. 3, copper and iron were noted at higher concentrations at the outside paired refuse well (W-6G) than the inside paired well (W-5G).

The general chemistry parameters indicative of leachate impact were at higher concentrations for the inside paired wells W-3G and W-5G at Transect Location Nos. 2 and 3 for all constituents analyzed this quarter. At Transect Location No. 4, the general chemistry parameters at the well inside the slurry wall (W-7G) was evidenced at greater concentrations with the exception of color, phenol, and surfactants. Overall, for Transect Location Nos. 2, 3, 4, and 5 there was a general one order of magnitude increase in constituent concentrations for inside paired wells. At Transect Location No. 1, there were some constituents, most notably color, BOD, and COD that were evidenced at higher concentrations in the outside paired well compared to the inside paired well.

3.2 Sand and Gravel Wells

Inorganic constituent concentrations in the sand and gravel wells varied across the slurry wall. At Transect Location No. 2, iron, sodium, and zinc were evidenced in lower concentrations outside the slurry wall. At Transect Location No. 4, zinc concentrations were less outside the wall than inside the wall. The inorganic constituents, copper, iron, sodium, and zinc were all evidenced at higher concentrations at well W-6S outside the slurry wall than inside the wall.

For the sand and gravel wells at Transect Location Nos. 2 and 3, the inside paired wells generally showed higher concentrations of indicator parameters than the outside paired wells. At Transect Location No. 5, all the general chemistry parameters, except color, were greater inside the wall than outside the wall. Color, chloride and sulfate were the only exceptions at Transect Location Nos. 2 and 3, which were at a slightly higher concentration outside the wall at wells W-4S and W-6S than inside the wall.

3.3 Rock Wells

At Transect Location Nos. 4 and 5, iron, sodium and zinc in the rock wells all showed higher concentrations inside the slurry wall than outside wall. Copper and lead were the only constituents evidenced higher (2.5 and 2.6 ug/l) in wells W-8R and W-10R, respectively, outside the wall at Transect Location Nos. 4 and 5 than inside. At Transect Location No. 2, copper, iron and zinc showed higher concentrations inside the slurry wall than outside. Transect Location Nos. 1 and 3 indicated variations in inorganic constituent concentrations across the wall, with copper and zinc greater in wells W-2R and W-6R outside the wall. Iron was also elevated in W-6R outside the wall than W-5R inside the wall.

The rock wells indicated higher concentrations of nearly all indicator parameters at Transect Location No. 5 at the inside paired wells. Ammonia was a notable exception with a concentration of 133 mg/l at W-2R outside the slurry wall at Transect Location No. 1. At Transect Location Nos. 2, 3, and 4, most general chemistry concentrations were higher inside the slurry wall than outside. For the constituents chloride, surfactants, TDS, and TOC, evidenced at higher concentrations outside the wall at wells W-4R, W-6R, and W-8R, the concentrations were only slightly greater and within the same order of magnitude.

FOUR

4 HYDRAULIC MONITORING

The hydraulic monitoring program for OU1 has been designed to assess the hydraulic performance of the slurry wall. Specifically, the maintenance of lower heads inside of the wall within the refuse will represent intragradient flow conditions, thereby minimizing the potential for contaminant migration beyond the limits of the wall. Also, the monitoring program will assess the ability of the groundwater pumping inside the wall to achieve and maintain an upward gradient between the bedrock and the overlying sand and gravel deposits. The attainment and maintenance of upward vertical gradients will minimize the potential for vertical migration of contamination into the bedrock groundwater regime.

4.1 Operable Unit 1

Hydraulic monitoring has been conducted at the site pursuant to the Hydraulic Performance Monitoring Plan as revised in February 1996. Components of the hydraulic monitoring program consist of continuous and manual water level measurements in the refuse/sand and gravel wells and manual measurements in the bedrock wells, immediately inside and outside of the circumferential slurry wall along five transects. Continuous water level measurements were obtained at one-hour intervals using an In-Situ "Troll" Model SP4000 data logger and transducer. Manual measurements were obtained with an electronic water level indicator. The five transect locations are shown on Drawing 1.

The hydraulic monitoring program was initiated on April 25, 1996 with the installation of continuous water level recorders in all the OU1 refuse and sand/gravel wells. For this Second Quarter 1996, two months of continuous water level data have been obtained for analysis. Manual measurements were obtained during April, May, and June 1996. The manual water level monitoring results are indicated on Table 4-1.

4.2 Operable Unit 2

Manual measurements were also obtained from the Operable Unit 2 wells sampled quarterly as part of the groundwater quality monitoring plan, which includes the Low-Lying Area and Mound B. Manual measurements were obtained April, May, and June 1996 concurrent with the hydraulic monitoring in OU1. The manual water level monitoring results are indicated on Table 4-1.

5 OU2 GROUNDWATER/SURFACE WATER QUALITY

Groundwater quality results for the OU2 monitoring wells are summarized in Table 5-1. Surface water quality data is summarized in Table 5-2. The database includes select metals and general chemistry parameters. The analytical report is provided in Appendix A. Field data sheets are presented in Appendix B. QA/QC sample results for OU2 are presented in Appendix D.

5.1 Refuse Wells

Among the OU2 refuse wells, concentrations of dissolved metals were similar to levels observed in the OU1 wells situated outside the slurry wall. Monitoring well GEI-10G revealed iron at 72,500 ug/l, while lead was not detected. Lead was detected at 25.9 and 17.2 ug/l in wells GEI-5G and GEI-6G, respectively. Sodium was detected at 1,010,000 ug/l in well GEI-6G, while zinc was detected at 214 ug/l.

General chemistry parameters at wells GEI-5G and GEI-6G were elevated for the following parameters relative to other OU2 refuse wells: ammonia nitrogen, COD, chloride, TDS, and TOC. At well GEI-6G, ammonia nitrogen levels were 538 mg/l, COD was 1,100 mg/l, and TDS was 2,930 mg/l.

5.2 Sand and Gravel Wells

Monitoring in the sand and gravel unit in OU2 revealed copper detections at WE-3S, WE-5S, and GEI-6S. Iron was evidenced at 157,000 ug/l in WE-3S. Sodium levels were elevated for all the sand and gravel wells, with the most notable concentration in WE-10S at 3,020,000 ug/l. Zinc was detected at 151 ug/l in WE-3S, 150 ug/l in GEI-6S, and 152 ug/l in WE-7S.

General chemistry parameters were elevated in WE-3S relative to other sand and gravel wells, most notably for ammonia nitrogen, BOD, COD, TDS, and TOC. Monitoring well WE-7S revealed ammonia nitrogen at 36.7 mg/l, COD at 597 mg/l, and TDS at 3,470 mg/l. Other detections included 4,200 mg/l of chloride and 7,140 mg/l of TDS in WE-10S. Nitrate was detected at 6.65 mg/l in GEI-6S and chloride was evidenced at 2,100 mg/l in WE-5S.

5.3 Rock Wells

Dissolved metals analyzed for OU2 bedrock wells revealed copper at 7.4 ug/l in the upgradient monitoring location WE-114D. Iron was detected at similar replicate concentrations in all the bedrock wells, while lead was not detected. Sodium was evidenced similarly elevated at all the bedrock wells except the upgradient location WE-114D. Zinc was detected at decreased concentrations relative to other OU2 wells screened in the refuse or sand/gravel units, but was evidenced at 68.3 ug/l in WE-114D.

General chemistry parameters in the bedrock wells evidenced fewer overall detections and lower concentrations as compared to other OU2 wells. Ammonia was detected at 10.5 mg/l in WE-6R, but generally less than 1.0 mg/l for the other bedrock wells. Chloride was evidenced between 3,300 and 4,200 mg/l in the bedrock wells, but was evidenced at just 68.5 mg/l in WE-114D. Monitoring well WE-10R revealed the highest concentration of sulfate at 405 mg/l. TDS was detected at 10,300 mg/l at WE-5R, while TOC detections were generally unremarkable relative to other OU2 wells.

5.4 Surface Water

Inorganic constituents were analyzed in the total metals fraction for surface waters. Monitoring point RR-02 adjacent to Mound B, evidenced copper at 6.1 ug/l and iron at 5,070 ug/l. Lead was detected at 15.2 ug/l in RR-02 and sodium was detected in RR-01 at 25,400 ug/l. Zinc was revealed at 78.4 and 82.9 ug/l in RR-02 and RR-03, respectively.

General chemistry parameter concentrations in the surface waters were generally consistent throughout the 4 monitoring points. COD was detected at 35.6 and 43.5 mg/l in RR-01 and RR-02, respectively. Chloride, sulfate, surfactants, and TDS levels were evidenced at lesser concentrations than the OU2 monitoring wells. TOC was not detected at any surface water monitoring point.

6 LANDFILL GAS MIGRATION MONITORING

All areas of OU1 exterior to the slurry wall contain waste materials except along the northern edge of the landfill boundary. Gas monitoring in the areas containing waste materials will likely reveal combustible gas. Since no on-site OU1 buildings are present, except the leachate treatment facility, which has its own engineered gas monitoring and control system, gas migration monitoring in the waste areas is not required by the monitoring plan.

The purpose of the gas migration monitoring program is to monitor for off-site gas migration in those areas where gas migration or accumulation could cause potential problems. Six gas migration monitoring wells are located outside of the circumferential slurry wall along the northern edge of the landfill boundary. The well locations are depicted on Drawing 1 and are spaced in 200-foot increments. Gas is not expected to be evidenced for the following reasons: the slurry wall will act as an effective barrier, the presence of an active gas extraction system and a high water table inhibiting gas migration.

6.1 Gas Monitoring Well Results

Measurements of percent combustible gas (% GAS) and percent lower explosive limit (% LEL) were performed in the six gas migration monitoring wells indicated in Table 6-1 on May 15, 1996. The wells were monitored according to Attachment 1, Section 3.0 Routine Operations and Maintenance, of the Kin-Buc Landfill Draft O&M Manual (Wheelabrator, 1995). An MSA Model 62S Gascope, was used to measure the concentration of combustible gas at each well by inserting the meter's sample tubing into the well or attaching to the well head petcock and drawing the sample through the meter. No detectable levels of percent combustible gas or percent lower explosive limit were evidenced in the six gas migration monitoring wells (Table 6-1).

6.2 Operational Flare Monitoring Results

The percent combustible gas by volume (% GAS) at the landfill's operational flare was recorded on May 15, 1996. A Landtec adaptor fitting was used at the inlet sample port, and monitoring with the MSA revealed combustible gas at the flare inlet at 53 percent.

SEVEN

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7 WATER QUALITY RESULTS OVERVIEW

The Remedial Design/Remedial Action for Operable Units 1 and 2 was substantially completed by the Respondents by July 1995. Post-remedial monitoring and sampling of groundwater, surface water, landfill gas, and wetlands has been completed for two quarters' monitoring periods. The remedial controls (circumferential slurry wall, leachate collection/treatment, groundwater collection/treatment, landfill gas collection/flaring, and final cover) have been in place for only a short period of time. Monitoring and sampling to date (first and second quarter 1996) represents data collection at the initiation of the monitoring program. The data collected is intended to provide groundwater quality and levels for post-remedial control and start-up against which future results can be compared. The discussion following in Sections 7-1 and 7-2 contains no specific comment on the overall effectiveness of the remedial controls or indication of trends relative to groundwater quality since, at this time in the monitoring program, neither may be evidenced in whole or in part.

7.1 Operable Unit 1

In Operable Unit 1 refuse wells, dissolved metals were generally detected at lesser concentrations outside the slurry wall than inside. In particular, sodium and zinc were never detected at a greater concentration at any transect location in the outside paired refuse well. Transect Location Nos. 2 and 5 evidenced all metals concentrations in the refuse greater inside the wall than outside. Metals detected in the sand and gravel unit were at similar concentrations across the slurry wall. At Transect Location No. 2, iron, sodium, and zinc concentrations and zinc at Transect Location No. 4 were greater inside than outside the wall at the sand and gravel wells. In the bedrock wells, metals concentrations were generally less outside the wall than inside. At Transect Location No. 5, all metals were detected at greater concentrations inside the wall than outside in the bedrock wells.

Indicator parameters were generally detected at greater concentrations inside the wall than outside the wall for the OU1 refuse wells. At Transect Location Nos. 2 and 3, all general chemistry parameters were detected in the refuse wells at greater concentrations inside than outside the wall. In the sand and gravel unit, indicator parameters were also mostly detected at higher concentrations inside than outside the wall, especially at Transect Location Nos. 2, 3, and 5. At Transect Location No. 5, only color was detected greater

outside than inside the wall in the sand and gravel. In the bedrock wells, the concentrations of nearly all indicator parameters were greater inside than outside the wall. At Transect Location No. 5, in the bedrock, all indicator parameters were greater inside than outside the slurry wall. Where individual general chemistry parameters were evidenced greater outside the wall than inside at bedrock wells, the concentrations were similar or only slightly greater.

7.2 Operable Unit 2

In Operable Unit 2 refuse wells, the levels of dissolved metals detected were similar to the levels detected in OU1 refuse wells situated outside the slurry wall. Notable detections relative to other refuse wells, of iron and sodium in GEI-10G and GEI-6G, respectively, were evidenced. In the OU2 sand and gravel wells, iron and sodium were generally elevated. Monitoring well WE-10S revealed one of the highest detections of sodium at 3,020,000 ug/l. Lead was not detected in any OU2 sand and gravel well except GEI-6S. Lead was not detected in any OU2 bedrock wells. At the upgradient bedrock monitoring location, WE-114D, copper was evidenced at the highest concentration of any OU2 monitoring well. Sodium was generally elevated in the bedrock wells but not at the upgradient location. In the upgradient bedrock well, WE-114D, the zinc concentration was greatest relative to the other bedrock wells at 68.3 ug/l. At the surface water monitoring location downstream of the Treatment Plant outfall, RR-04, metals concentrations were less than those detected at the other surface water monitoring points. Overall, iron and sodium concentrations were less in the surface water monitoring locations than any other OU2 monitoring wells.

General chemistry analysis in the OU2 refuse wells revealed elevated levels in GEI-5G and GEI-6G. Both wells can be considered the most downgradient refuse wells to Mound B. Monitoring well GEI-10G, adjacent to the Edison Landfill, revealed the highest level of surfactants of any OU2 well. In the OU2 sand and gravel wells, WE-3S had the highest concentrations of indicator parameters. Monitoring well WE-3S is immediately downgradient of the Low-Lying Area. Unique water quality in WE-10S relative to other sand and gravel wells was evidenced in the elevated levels of chloride and TDS. In the bedrock wells, fewer and lower detections of indicator parameters were evidenced relative to other OU2 wells. Sulfate was detected highest in the bedrock wells at WE-10R. At the upgradient monitoring point, WE-114D, the general chemistry parameter concentrations were generally low, especially for COD, chloride, TDS, and TOC. Indicator parameters in the Raritan River monitoring points were generally less than the OU2 monitoring wells, especially chloride, sulfate, surfactants, TDS, and TOC. Monitoring point RR-04, located downstream of the Treatment Plant outfall revealed similar or lower concentrations of indicator parameters than the other surface water monitoring points.

8 HYDRAULIC MONITORING RESULTS OVERVIEW AND RECOMMENDATIONS

The hydraulic monitoring plan calls for the preparation of tables and hydrographs summarizing groundwater flow conditions at the site. Previously presented in Section 4, Table 4-1 summarizes the manual water level measurements obtained from the OU1 and OU2 monitoring wells during April, May, and June 1996. Table 8-1 provides a summary of the vertical gradients (upward or downward) at the different well cluster locations in May 1996. Appendix E provides hydrographs of continuous water level measurements of the refuse wells inside and outside the slurry wall. Each hydrograph consists of an interior and exterior refuse well at each individual Transect Location for visual assessment of intragradient conditions. Appendix F contains the individual hydrographs for each well where continuous monitoring was conducted, including the sand and gravel wells. The following Sections 8.1-8.3 include a discussion of the results of the hydraulic monitoring program. Section 8.4 includes the conclusions and recommendations for future hydraulic monitoring activities.

8.1 Assessment of Intragradient Conditions Within the Refuse - OU1

A review of the hydrographs in Appendix E indicates that for the most part intragradient conditions are being maintained in the refuse unit. The heads in the refuse are higher immediately outside the wall relative to the heads inside the wall indicating a tendency for groundwater to flow inward, thus minimizing the potential for contaminant migration beyond the limits of the wall. Head differences were 4 to 5 feet higher outside the wall at Transect Location No. 1 to several tenths of a foot higher outside at Transect Location No. 5. This intragradient condition was evident at all the transect locations with the exception of Transect Location No. 4 and for an approximate 2-week period (May 2-16) at Transect Location No. 2 where heads in the refuse were higher inside the wall. It is worthwhile to note that W-8G, which is located outside of the wall at Transect No. 4, contains a considerable thickness of a viscous oil, which could be affecting the transducer readings.

8.2 Assessment of Vertical Hydraulic Gradients - OU1

Table 8-1 summarizes the vertical gradients between the monitoring well clusters along the transect locations for the May 1996 event. Vertical gradients are examined between the refuse and sand/gravel wells and between the sand/gravel and bedrock wells. The May sampling event contains the most data for the sand/gravel and bedrock installations and therefore was chosen to represent a snapshot picture of conditions at the site. Upward hydraulic gradients between the bedrock and sand/gravel are observed inside the wall at the W-5S/5R location. Downward gradients were noted for the other two locations inside the wall, W-3S/3R, and W-7S/7R. During the June event upward gradients between the rock and the sand/gravel inside the wall were also observed at W-7S/7R in addition to W-5S/5R (Table 4-1).

8.3 OU2 Hydraulic Monitoring

The groundwater elevation data obtained from the monitoring of the OU2 wells indicates a general horizontal flow of groundwater in a westerly direction toward the Raritan River consistent with the findings during the Remedial Investigation. Based on the May 1996 monitoring event both upward and downward gradients are characterized. Generally downward gradients prevail between the refuse and the underlying units. Upward gradients between the bedrock and the overlying sand and gravel were noted at several locations, including WE-10S/WE-10R, GEI-6S/WE-6R, GEI-7G/WE-7S and WE-7S/WE-7R. The vertical gradients for OU2 wells are indicated on Table 8-1.

8.4 Conclusions and Recommendations

The results of the initiation of the hydraulic monitoring program indicate that generally intragradient conditions are being maintained within the refuse unit around the slurry wall. This intragradient condition indicates that there is little potential for contamination to migrate within the refuse beyond the slurry wall. Based on snapshot measurements of sand/gravel and bedrock wells, there does not appear to be an attainment of upward gradients at all locations.

Based on the initial evaluation of the hydraulic monitoring, it is recommended that the present program be continued at the same level and frequency of monitoring to confirm the attainment of intragradient conditions and to monitor the hydraulic relationship between the sand/gravel and the bedrock.

REFERENCES

- Proposed Groundwater Monitoring Plan for the Kin-Buc Landfill Operable Unit 1 RD/RA, Wehran Engineering Corporation, Middletown, New York, December 1992.
- Final Addendum 1 to the Proposed Groundwater Monitoring Plan for the Kin-Buc Landfill Operable Unit 1 Closure Plan Re: OU2 Groundwater and Surface Water Monitoring, Wehran Engineering Corporation, Middletown, New York, August 1994.
- Draft Operations and Maintenance Manual for the Kin-Buc Landfill, Wheelabrator EOS, Inc., Pittsburgh, PA, August 1995.
- Remedial Action Report for Operable Unit 2 for the Kin-Buc Landfill Superfund Site, Blasland, Bouck & Lee, Inc., January 1996.
- Appendix C Groundwater, Surface Water, Wetlands and Biota Monitoring Plans for the Kin-Buc Landfill Operable Units 1 and 2, Wheelabrator EOS, Inc., Pittsburgh, PA, August 1995.
- Remedial Action Report Volume I Remedial Action Report, Tables, Appendices A1-A5 for the Kin-Buc Landfill Operable Unit 1, Blasland, Bouck & Lee, Inc., September 1995, Revised February 1996.
- Draft Wetland Restoration Monitoring Report, Kin-Buc Landfill, Operable Unit 2, International Technology Corporation, 1995.
- Draft Remedial Investigation Report for Kin-Buc Landfill Operable Unit 2, Wehran Engineering Corporation, Middletown, New York, October 1990.

TABLES

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Table 1-1
Kin-Buc Landfill
Operable Units 1 and 2
Groundwater Quality Monitoring Plan

| Parameters ^{1,2} | Method |
|---|---------------------|
| Arsenic (As) ⁴ | EPA 206.2 |
| Barium (Ba) ⁴ | EPA 200.7 |
| Biochemical Oxygen Demand (BOD) ^{3,4} | EPA 405.1 |
| Cadmium (Cd) ⁴ | EPA 200.7 |
| Chloride (Cl) ^{3,4} | EPA 325.3 |
| Chromium (Hexavalent Cr + 6) ⁴ | EPA 218.5 |
| Chemical Oxygen Demand (COD) ^{3,4} | EPA 410.1 |
| Color ^{3,4} | EPA 110.2 |
| Coliforms (total, fecal, strep) ^{3,4} | SM 908A, 909C, 910B |
| Copper (Cu) ^{3,4} | EPA 200.7 |
| Cyanide (CN) ⁴ | EPA 335.2 |
| Fluoride (F) ⁴ | EPA 340.2 |
| Foaming Agents (MBAS) ^{3,4} | EPA 425.1 |
| Hardness (CaCO ₃) ⁴ | EPA 130.1 |
| Iron (Fe) ^{3,4} | EPA 200.7 |
| Lead (Pb) ^{3,4} | EPA 239.2 |
| Manganese (Mn) ⁴ | EPA 200.7 |
| Mercury (Hg) ⁴ | EPA 245.1 |
| Nitrate Nitrogen (NO ₃ -N) ^{3,4} | EPA 352.1 |
| Ammonium Nitrogen (NH ₄ -N) ^{3,4} | EPA 350.2 |
| Odor ^{3,4} | EPA 140.1 |
| pH ^{3,4} | 40 CFR 141, 143 |
| Phenolic Compounds ^{3,4} | EPA 420.1 |
| PP Volatile Organics (including dichlorobenzene isomers) ⁴ | EPA 624 |
| Selenium (Se) ⁴ | EPA 270.3 |
| Silver (Ag) ⁴ | EPA 200.7 |
| Sodium (Na) ^{3,4} | EPA 200.7 |
| Sulfates (SO ₄) ^{3,4} | EPA 375.3 |
| Total Dissolved Solids (TDS) ^{3,4} | EPA 160.1 |
| Total Organic Carbon (TOC) ^{3,4} | EPA 415.1 |
| Total Organic Halides (TOX) ⁴ | EPA 9020 |
| Turbidity ⁴ | EPA 180.1 |
| Zinc (Zn) ^{3,4} | EPA 200.7 |

Notes:

1. Parameter list from NJAC 7:14A-10.12 et seq., Discharges from Sanitary Landfills.
2. The initial analysis will be performed for the annual list of parameters plus PP acid/base neutrals, (EPA 625) and PP pesticides/PCBs, including gamma BHC — Lindane, DDT, metabolites, and methoxychlor (EPA 608).
3. Quarterly Parameters.
4. Annual Parameters.

Table 1-2

**Kin-Buc Landfill
Operable Unit 1
Groundwater Monitoring Well Network/Transects**

| Transect Location No. | Screened Hydrogeologic Unit | Well Location Inside Slurry Wall | Paired Well Location Outside Slurry Wall |
|----------------------------------|---|---|---|
| 1 | Refuse/Fill Bedrock | W-1G W-1R | W-2G W-2R |
| 2 | Refuse/Fill Sand and Gravel Bedrock | W-3G W-3S W-3R | W-4G W-4S W-4R |
| 3 | Refuse/Fill Sand and Gravel Bedrock | W-5G W-5S W-5R | W-6G W-6S W-6R |
| 4 | Refuse/Fill Sand and Gravel Bedrock | W-7G W-7S W-7R | W-8G W-8S W-8R |
| 5 | Refuse/Fill Bedrock | W-9G W-9R | W-10G W-10R |

Table 1-3

**Kin-Buc Landfill
Operable Unit 2
Groundwater and Surface Water Monitoring Network**

| Well Location | Screened Hydrogeologic Unit |
|-----------------------|--|
| Low-Lying Area | |
| GEI-10G | Fill/Refuse |
| WE-10S | Sand & Gravel |
| WE-10R | Bedrock |
| GEI-3G | Fill/Refuse |
| WE-3S | Sand & Gravel |
| WE-3R | Bedrock |
| Mound B | |
| GEI-5G | Fill/Refuse |
| WE-5S | Sand & Gravel |
| WE-5R | Bedrock |
| GEI-6G | Fill/Refuse |
| GEI-6S | Sand & Gravel |
| WE-6R | Bedrock |
| GEI-7G | Fill/Refuse |
| WE-7S | Sand & Gravel |
| WE-7R | Bedrock |
| Upgradient | |
| WE-114D | Bedrock |
| Surface Water | |
| RR-01 | Raritan River |
| RR-02 | Raritan River |
| RR-03 | Raritan River |
| RR-04 | Raritan River |

Table 3-1
Kin-Buc Landfill Operable Unit 1
Groundwater Monitoring Results
Transect Location No. 1

| Parameters | W-1G | W-2G | W-1R | W-2R |
|---------------------------------|--------|--------|---------|---------|
| Dissolved Metals (ug/l) | | | | |
| Copper | <1.3 | <1.3 | 14.9 | 54.1 |
| Iron | 51700 | 81000 | 1490000 | 1070000 |
| Lead | <1.5 | <1.5 | <1.5 | <1.5 |
| Sodium | 488000 | 255000 | 1510000 | 970000 |
| Zinc | 162 | 133 | 9670 | 17500 |
| General Chemistry (mg/l) | | | | |
| pH, SU | 6.71 | 6.31 | 5.22 | 5.20 |
| Color, Pt-Co | 300 | 2000 | 2000 | 2000 |
| Fecal Coliforms, colonies/100ml | <1.0 | <1.0 | <1.0 | <1.0 |
| Fecal Strep, colonies/100ml | <1.0 | <1.0 | <1.0 | <1.0 |
| Total Coliforms, colonies/100ml | <1.0 | <1.0 | <1.0 | <1.0 |
| Ammonia, Nitrogen | 8.09 | 0.735 | 18.3 | 133 |
| Biochemical Oxygen Demand | 5.0 | 11.7 | 19900 | 10200 |
| Chemical Oxygen Demand | 170 | 193 | 27700 | 24100 |
| Chloride | 1130 | 455 | <1.0 | <1.0 |
| Nitrate | <0.04 | <0.04 | <0.04 | <0.04 |
| Phenol | 0.031 | 0.024 | 0.304 | 0.488 |
| Sulfate | 453 | 348 | 2240 | 1460 |
| Surfactants | 0.56 | 0.68 | 0.27 | 1.05 |
| Total Dissolved Solids | 2220 | 1970 | 27000 | 16600 |
| Total Organic Carbon | 40.2 | 55.6 | 8260 | 7570 |

Table 3-1
Kin-Buc Landfill Operable Unit 1
Groundwater Monitoring Results
Transect Location No. 2

| Parameters | W-3G | W-4G | W-3S | W-4S | W-3R | W-4R |
|---------------------------------|---------|--------|---------|---------|---------|---------|
| Dissolved Metals (ug/l) | | | | | | |
| Copper | <1.3 | <1.3 | 6.8 | 65.2 | 19.1 | <1.3 |
| Iron | 47800 | 4450 | 155000 | 76300 | 24500 | 17700 |
| Lead | 17.9 | 1.9 | <1.5 | <1.5 | <1.5 | <1.5 |
| Sodium | 1060000 | 952000 | 1510000 | 1350000 | 1320000 | 1340000 |
| Zinc | 129 | 122 | 195 | 115 | 32.2 | 20.5 |
| General Chemistry (mg/l) | | | | | | |
| pH, SU | 6.96 | 7.40 | 6.69 | 6.55 | 6.50 | 6.56 |
| Color, Pt-Co | 1500 | 400 | 2000 | 2500 | 1000 | 200 |
| Fecal Coliforms, colonies/100ml | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Fecal Strep, colonies/100ml | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Total Coliforms, colonies/100ml | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Ammonia, Nitrogen | 280 | 167 | 75.7 | 33.9 | 0.244 | 0.166 |
| Biochemical Oxygen Demand | 108 | 45 | 156 | 41.7 | 3.7 | <3.0 |
| Chemical Oxygen Demand | 1660 | 826 | 1720 | 611 | 672 | 179 |
| Chloride | 1450 | 970 | 2420 | 2600 | 2220 | 2350 |
| Nitrate | <0.04 | <0.04 | <0.04 | <0.04 | <0.04 | 0.06 |
| Phenol | 0.215 | 0.093 | 0.202 | 0.072 | 0.079 | 0.188 |
| Sulfate | 336 | 26.3 | 198 | 750 | 40.5 | 40.5 |
| Surfactants | 1.89 | 1.56 | 1.24 | 0.81 | 0.90 | 0.56 |
| Total Dissolved Solids | 3740 | 2420 | 5970 | 176 | 3560 | 5490 |
| Total Organic Carbon | 242 | 138 | 442 | 147 | 60.9 | 8.98 |

Table 3-1
Kin-Buc Landfill Operable Unit 1
Groundwater Monitoring Results
Transect Location No. 3

| Parameters | W-5G | W-6G | W-5S | W-6S | W-5R | W-6R |
|---------------------------------|--------|---------|-------|---------|---------|---------|
| Dissolved Metals (ug/l) | | | | | | |
| Copper | 3.6 | 11.4 | <1.3 | 4.6 | 1.3 | 1.5 |
| Iron | 37300 | 49600 | 46.4 | 7680 | 5500 | 38800 |
| Lead | <1.5 | <1.5 | <1.5 | <1.5 | 1.5 | <1.5 |
| Sodium | 181000 | 41400 | 3910 | 2110000 | 2810000 | 2310000 |
| Zinc | 232 | 36.4 | 20.6 | 25.6 | 17.1 | 32 |
| General Chemistry (mg/l) | | | | | | |
| pH, SU | 6.97 | 6.43 | 10.55 | 7.01 | 6.95 | 6.66 |
| Color, Pt-Co | 300 | 300 | 60 | 400 | 1000 | 200 |
| Fecal Coliforms, colonies/100ml | N/A | N/A | N/A | N/A | <1.0 | N/A |
| Fecal Strep, colonies/100ml | N/A | N/A | N/A | N/A | <1.0 | N/A |
| Total Coliforms, colonies/100ml | N/A | N/A | N/A | N/A | 50000 | N/A |
| Ammonia, Nitrogen | 106 | 65.1 | 22.6 | 10.2 | 1.62 | 0.308 |
| Biochemical Oxygen Demand | 25.3 | 5.3 | 30.6 | 19.5 | 15 | 11.3 |
| Chemical Oxygen Demand | 267 | 97.8 | 303 | 297 | 276 | 331 |
| Chloride | 207 | 36.8 | 3420 | 3570 | 4370 | 3260 |
| Nitrate | <0.04 | <0.04 | 0.06 | 0.06 | 0.04 | <0.04 |
| Phenol | 0.003 | <0.0035 | 0.104 | 0.035 | 0.127 | <0.0035 |
| Sulfate | 159 | 113 | 65.8 | 22.1 | 84.2 | 307 |
| Surfactants | 1.16 | 0.88 | 0.85 | 0.53 | 2.05 | 2.50 |
| Total Dissolved Solids | 1160 | 305 | 7830 | 6890 | 8350 | 9580 |
| Total Organic Carbon | 64.0 | 21.5 | 31.4 | 49.2 | 38.9 | 27.4 |

Table 3-1
Kin-Buc Landfill Operable Unit 1
Groundwater Monitoring Results
Transect Location No. 4

| Parameters | W-7G | W-8G | W-7S | W-8S | W-7R | W-8R |
|---------------------------------|--------|--------|---------|---------|---------|---------|
| Dissolved Metals (ug/l) | | | | | | |
| Copper | 8.4 | <1.3 | <1.3 | <1.3 | <1.3 | 2.5 |
| Iron | 36300 | 41000 | 3110 | 3910 | 16400 | 8230 |
| Lead | 28 | 3.1 | <1.5 | <1.5 | <1.5 | <1.5 |
| Sodium | 778000 | 441000 | 2410000 | 2880000 | 3180000 | 2960000 |
| Zinc | 176 | 174 | 25.1 | 10.4 | 127 | 113 |
| General Chemistry (mg/l) | | | | | | |
| pH, SU | 6.87 | 6.68 | 7.38 | 6.94 | 6.95 | 6.75 |
| Color, Pt-Co | 400 | 1500 | 200 | 200 | 200 | 300 |
| Fecal Coliforms, colonies/100ml | N/A | N/A | N/A | N/A | N/A | N/A |
| Fecal Strep, colonies/100ml | N/A | N/A | N/A | N/A | N/A | N/A |
| Total Coliforms, colonies/100ml | N/A | N/A | N/A | N/A | N/A | N/A |
| Ammonia, Nitrogen | 297 | 199 | 29.1 | 5.19 | 6.76 | 6.01 |
| Biochemical Oxygen Demand | 84.7 | 38.0 | 8.3 | <3.0 | 7.3 | 7.5 |
| Chemical Oxygen Demand | 1340 | 871 | 355 | 376 | 324 | 299 |
| Chloride | 1080 | 654 | 3230 | 4090 | 4700 | 4570 |
| Nitrate | <0.04 | <0.04 | 0.06 | 0.06 | 0.13 | 0.06 |
| Phenol | 0.279 | 0.325 | <0.0035 | <0.0035 | <0.0035 | <0.0035 |
| Sulfate | 366 | 56.6 | 159 | 237 | 490 | 384 |
| Surfactants | 1.23 | 1.93 | 0.88 | 0.43 | 0.23 | 0.72 |
| Total Dissolved Solids | 3800 | 1890 | 949 | 8990 | 10300 | 9550 |
| Total Organic Carbon | 252 | 204 | 41.0 | 26.1 | 21.7 | 26.4 |

Table 3-1
Kin-Buc Landfill Operable Unit 1
Groundwater Monitoring Results
Transect Location No. 5

| Parameters | W-9G | W-10G | W-9R | W-10R |
|---------------------------------|-------|-------|-------|-------|
| Dissolved Metals (ug/l) | | | | |
| Copper | 9.2 | <1.3 | 32.2 | <1.3 |
| Iron | 70300 | 17100 | 27200 | 5250 |
| Lead | <1.5 | <1.5 | <1.5 | 2.6 |
| Sodium | 35800 | 13100 | 20100 | 15300 |
| Zinc | 163 | 82 | 62.8 | 29.9 |
| General Chemistry (mg/l) | | | | |
| pH, SU | 5.40 | 6.73 | 5.98 | 6.60 |
| Color, Pt-Co | 200 | 300 | 300 | 100 |
| Fecal Coliforms, colonies/100ml | <1.0 | <1.0 | <1.0 | <1.0 |
| Fecal Strep, colonies/100ml | <1.0 | <1.0 | <1.0 | <1.0 |
| Total Coliforms, colonies/100ml | <1.0 | <1.0 | <1.0 | <1.0 |
| Ammonia, Nitrogen | <0.05 | <0.05 | 0.11 | <0.05 |
| Biochemical Oxygen Demand | 10.5 | <3.0 | <3.0 | <3.0 |
| Chemical Oxygen Demand | 52.6 | 18.7 | <3.0 | <3.0 |
| Chloride | 350 | 40.2 | 130 | 26.1 |
| Nitrate | <0.04 | <0.04 | <0.04 | <0.04 |
| Phenol | 0.031 | 0.011 | 0.004 | 0.004 |
| Sulfate | 311 | 155 | 380 | 132 |
| Surfactants | 0.33 | 0.12 | 0.19 | 0.76 |
| Total Dissolved Solids | 1130 | 283 | 489 | 184 |
| Total Organic Carbon | 4.98 | <1.0 | <1.0 | <1.0 |

Table 4 - 1
KinBuc Landfill Operable Units 1 and 2
Manually Recorded Water Level Elevations

| Well ID | TOC Bottom | TOC Ref Elevation | April TOC Static | April Elevation | May TOC Static | May Elevation | June TOC Static | June Elevation |
|------------|------------|-------------------|------------------|-----------------|----------------|---------------|-----------------|----------------|
| OU1 | | | | | | | | |
| W-1G | 20.5 | 30.55 | 15.18 | 15.37 | 14.79 | 15.76 | 11.78 | 18.77 |
| W-1R | 35.34 | 30.57 | NA | NA | 18.62 | 11.95 | 18.3 | 12.27 |
| W-2G | 20.83 | 30.58 | 12.46 | 18.12 | 14.95 | 15.63 | 12.86 | 17.72 |
| W-2R | 35.33 | 30.62 | NA | NA | 22.4 | 8.22 | 22.06 | 8.56 |
| W-3G | 19.07 | 20.83 | 9.63 | 11.20 | 9.79 | 11.04 | 9.93 | 10.9 |
| W-3S | 31.48 | 20.74 | 19.07 | 1.67 | 19.93 | 0.81 | NA | NA |
| W-3R | 53.84 | 20.54 | NA | NA | 20.05 | 0.49 | 19.36 | 1.18 |
| W-4G | 17.57 | 20.13 | 8.91 | 11.22 | 9.41 | 10.72 | 9.36 | 10.77 |
| W-4S | 31.58 | 19.68 | 18.99 | 0.69 | 18.8 | 0.88 | 18.64 | 1.04 |
| W-4R | 54.92 | 19.62 | NA | NA | 19.55 | 0.07 | 19.41 | 0.21 |
| W-5G | 24.36 | 24.46 | 12.56 | 11.90 | 12.9 | 11.56 | 13.1 | 11.36 |
| W-5S | 30.33 | 24.43 | 22.57 | 1.86 | 23.08 | 1.35 | 22.94 | 1.49 |
| W-5R | 41.64 | 24.44 | NA | NA | 22.98 | 1.46 | 22.32 | 2.12 |
| W-6G | 23.99 | 24.23 | 11.59 | 12.64 | 12.15 | 12.08 | 13.02 | 11.21 |
| W-6S | 38.49 | 24.21 | 22.21 | 2.00 | 22.7 | 1.51 | 22.63 | 1.58 |
| W-6R | 50.43 | 24.27 | NA | NA | 22.8 | 1.47 | 22.23 | 2.04 |
| W-7G | 20.63 | 18.37 | 6.98 | 11.39 | 7.28 | 11.09 | 7.48 | 10.89 |
| W-7S | 29.34 | 11.71 | 9.06 | 2.65 | 9.67 | 2.04 | 9.7 | 2.01 |
| W-7R | 45.13 | 11.14 | NA | NA | 9.52 | 1.62 | 8.78 | 2.36 |
| W-8G | 20.38 | 18.03 | 9.74 | 8.29 | 10.48 | 7.55 | 10.61 | 7.42 |
| W-8S | 28.86 | 10.92 | 8.41 | 2.51 | 8.68 | 2.24 | 9.14 | 1.78 |
| W-8R | 42.91 | 10.56 | NA | NA | 8.94 | 1.62 | 8.68 | 1.88 |
| W-9G | 21.93 | 27.04 | 19.03 | 8.01 | 19.34 | 7.7 | 18.12 | 8.92 |
| W-9R | 39.05 | 27.27 | NA | NA | 21.69 | 5.58 | 20.53 | 6.74 |
| W-10G | 22.56 | 27.06 | 18.98 | 8.08 | 19.13 | 7.93 | 16.17 | 10.89 |
| W-10R | 34.01 | 26.99 | NA | NA | 19.61 | 7.38 | 19.27 | 7.72 |
| OU2 | | | | | | | | |
| GEI-10G | 13.91 | 13.65 | NA | NA | 1.54 | 12.11 | 1.12 | 12.53 |
| WE-10S | 29.57 | 14.99 | NA | NA | 13.4 | 1.59 | 12.1 | 2.89 |
| WE-10R | 41.74 | 13.96 | NA | NA | 12.35 | 1.61 | 11.85 | 2.11 |
| GEI-3G | 13.54 | 16.73 | NA | NA | 4.78 | 11.95 | 5.54 | 11.19 |
| WE-3S | 25.67 | 15.12 | NA | NA | 13.9 | 1.22 | 13.68 | 1.44 |
| WE-3R | 46.51 | 14.99 | NA | NA | 13.83 | 1.16 | 13.68 | 1.31 |
| GEI-5G | 14.60 | 16.08 | NA | NA | 8.98 | 7.1 | 9.33 | 6.75 |
| WE-5S | 25.84 | 15.04 | NA | NA | 13.95 | 1.09 | 14.2 | 0.84 |
| WE-5R | 49.64 | 15.31 | NA | NA | 14.25 | 1.06 | 14.32 | 0.99 |
| GEI-6G | 14.97 | 19.76 | NA | NA | 11.68 | 8.08 | 11.78 | 7.98 |
| GEI-6S | 43.67 | 20.99 | NA | NA | 20.28 | 0.71 | 24.8 | -3.81 |
| WE-6R | 47.12 | 19.62 | NA | NA | 18.49 | 1.13 | 19.29 | 0.33 |
| GEI-7G | 13.74 | 17.23 | NA | NA | DRY | DRY | 12.97 | 4.26 |
| WE-7S | 30.07 | 15.86 | NA | NA | 15.2 | 0.66 | 15.62 | 0.24 |
| WE-7R | 72.88 | 15.93 | NA | NA | 15.18 | 0.75 | 16.4 | -0.47 |
| WE-114D | 34.81 | 20.68 | NA | NA | 12.79 | 7.89 | NA | NA |

NA - Indicates water level meter malfunction during April, OU1 "Trolls" provide data.

Table 5-1
Kin-Buc Landfill Operable Unit 2
Groundwater Monitoring Results
Refuse Wells

| Parameters | GEI-3G | GEI-5G | GEI-6G | GEI-10G |
|---------------------------------|---------|---------|---------|---------|
| Dissolved Metals (ug/l) | | | | |
| Copper | 3.8 | 4.7 | 6.1 | <3.0 |
| Iron | 46100 | 35600 | 9550 | 72500 |
| Lead | <1.5 | 25.9 | 17.2 | <1.5 |
| Sodium | 40300 | 401000 | 1010000 | 96800 |
| Zinc | 122 | 65.7 | 214 | 151 |
| General Chemistry (mg/l) | | | | |
| pH, SU | 6.69 | 6.55 | 6.93 | 6.89 |
| Color, Pt-Co | 1500 | 1500 | 1500 | 300 |
| Fecal Coliforms, colonies/100ml | <1.0 | <1.0 | 10000 | N/A |
| Fecal Strep, colonies/100ml | <1.0 | <1.0 | <1.0 | N/A |
| Total Coliforms, colonies/100ml | <1.0 | <1.0 | N/A | N/A |
| Ammonia, Nitrogen | 28.5 | 218 | 538 | 75.4 |
| Biochemical Oxygen Demand | <3.0 | 43.3 | 25.3 | 127 |
| Chemical Oxygen Demand | 108 | 634 | 1100 | 141 |
| Chloride | 16.4 | 2940 | 910 | 136 |
| Nitrate | 0.08 | <0.25 | 1.32 | <0.04 |
| Phenol | <0.0035 | <0.0035 | <0.25 | <0.0035 |
| Sulfate | 273 | 81.0 | 63.7 | 888 |
| Surfactants | 0.12 | 0.54 | 0.35 | 0.57 |
| Total Dissolved Solids | 520 | 1780 | 2930 | 398 |
| Total Organic Carbon | 11.6 | 113 | 126 | 34.1 |

Table 5-1
Kin-Buc Landfill Operable Unit 2
Groundwater Monitoring Results
Sand/Gravel Wells

| Parameters | WE-3S | WE-5S | GEI-6S | WE-7S | WE-10S |
|---------------------------------|---------|---------|---------|---------|---------|
| Dissolved Metals (ug/l) | | | | | |
| Copper | 6 | 6.4 | 7.1 | <1.3 | <1.3 |
| Iron | 157000 | 70700 | 598 | 38700 | 17600 |
| Lead | <1.5 | <1.5 | 4.4 | <1.5 | <1.5 |
| Sodium | 1910000 | 1790000 | 103000 | 1160000 | 3020000 |
| Zinc | 151 | 36.7 | 150 | 152 | 22.5 |
| General Chemistry (mg/l) | | | | | |
| pH, SU | 6.11 | 6.57 | 7.28 | 6.73 | 7.07 |
| Color, Pt-Co | 2500 | 1500 | 300 | 1500 | 200 |
| Fecal Coliforms, colonies/100ml | <1.0 | 8000 | 15000 | 3200 | N/A |
| Fecal Strep, colonies/100ml | <1.0 | <1.0 | <1.0 | <1.0 | N/A |
| Total Coliforms, colonies/100ml | 16800 | N/A | N/A | N/A | N/A |
| Ammonia, Nitrogen | 21.3 | 9.42 | 3.14 | 36.7 | 3.18 |
| Biochemical Oxygen Demand | 60 | 20.7 | 22.5 | <3.0 | <3.0 |
| Chemical Oxygen Demand | 2520 | 433 | 112 | 597 | 368 |
| Chloride | 95.4 | 2100 | 59.0 | 1280 | 4200 |
| Nitrate | <0.04 | <0.04 | 6.65 | 0.12 | 0.07 |
| Phenol | 0.191 | <0.0035 | <0.0035 | <0.0035 | <0.0035 |
| Sulfate | 181 | 171 | 230 | 710 | 435 |
| Surfactants | 0.83 | 0.51 | <0.05 | 0.43 | 0.88 |
| Total Dissolved Solids | 8870 | 5880 | 923 | 3470 | 7140 |
| Total Organic Carbon | 818 | 128 | 9.12 | 100 | 20.9 |

Table 5-1
Kin-Buc Landfill Operable Unit 2
Groundwater Monitoring Results
Bedrock Wells

| Parameters | WE-3R | WE-5R | WE-6R | WE-7R | WE-10R | WE-114D |
|---------------------------------|---------|---------|---------|---------|---------|---------|
| Dissolved Metals (ug/l) | | | | | | |
| Copper | 2.8 | 5.3 | 3.9 | 2.1 | <1.3 | 7.4 |
| Iron | 19900 | 18900 | 20300 | 20400 | 19600 | 23100 |
| Lead | <1.5 | <1.5 | <1.5 | <1.5 | <1.5 | <1.5 |
| Sodium | 2920000 | 2450000 | 2120000 | 1300000 | 3160000 | 28600 |
| Zinc | 18.7 | 34.8 | 24.6 | 27.4 | 28.2 | 68.3 |
| General Chemistry (mg/l) | | | | | | |
| pH, SU | 6.59 | 6.49 | 6.66 | 6.52 | 7.07 | 6.63 |
| Color, Pt-Co | 1500 | 1000 | 300 | 200 | 200 | 300 |
| Fecal Coliforms, colonies/100ml | <1.0 | <1.0 | 5000 | <1.0 | N/A | <1.0 |
| Fecal Strep, colonies/100ml | <1.0 | <1.0 | <1.0 | <1.0 | N/A | <1.0 |
| Total Coliforms, colonies/100ml | <1.0 | <1.0 | N/A | <1.0 | N/A | 300 |
| Ammonia, Nitrogen | 0.696 | 0.671 | 10.5 | 0.316 | 1.25 | <0.05 |
| Biochemical Oxygen Demand | <3.0 | 11.0 | <3.0 | <3.0 | <3.0 | 4.8 |
| Chemical Oxygen Demand | 270 | 193 | 249 | 127 | 380 | 26.3 |
| Chloride | 3700 | 3930 | 3380 | 4130 | 4230 | 68.5 |
| Nitrate | 0.09 | 0.08 | <0.04 | 0.05 | 0.04 | 0.09 |
| Phenol | <0.0035 | <0.0035 | <0.0035 | <0.0035 | <0.0035 | <0.0035 |
| Sulfate | 303 | 356 | 230 | 137 | 405 | 293 |
| Surfactants | 0.48 | <0.05 | 0.38 | 0.22 | 0.65 | <0.05 |
| Total Dissolved Solids | 5590 | 10300 | 8640 | 6020 | 33 | 563 |
| Total Organic Carbon | 15.6 | 6.94 | 10.4 | <1.0 | 20.5 | <1.0 |

Table 5-2
Kin-Buc Landfill
Operable Unit 2
Surface Water Monitoring Results

| Parameters | RR-01 | RR-02 | RR-03 | RR-04 |
|---------------------------------|---------|---------|---------|---------|
| Metals (ug/l) | | | | |
| Copper | 4 | 6.1 | <1.3 | <1.3 |
| Iron | 2670 | 5070 | 1400 | 930 |
| Lead | 7.3 | 15.2 | 6.8 | 1.8 |
| Sodium | 25400 | 19100 | 21100 | 18600 |
| Zinc | 54.6 | 78.4 | 82.9 | 29.3 |
| General Chemistry (mg/l) | | | | |
| pH, SU | 8.09 | 8.04 | 7.96 | 7.93 |
| Color, Pt-Co | 300 | 200 | 200 | 200 |
| Ammonia, Nitrogen | <0.05 | <0.05 | <0.05 | <0.05 |
| Biochemical Oxygen Demand | 4.7 | <3.0 | 3.1 | <3.0 |
| Chemical Oxygen Demand | 36.8 | 43.5 | <3.0 | 5.1 |
| Chloride | 35.6 | 30.2 | 31.3 | 30.5 |
| Nitrate | 1.21 | 1.13 | 1.15 | 1.15 |
| Phenol | <0.0035 | <0.0035 | <0.0035 | <0.0035 |
| Sulfate | 32.8 | 19.9 | 23.6 | 20.1 |
| Surfactants | 0.18 | 0.11 | 0.15 | 0.25 |
| Total Dissolved Solids | 175 | 161 | 146 | 150 |
| Total Organic Carbon | <1.0 | <1.0 | <1.0 | <1.0 |

Table 6-1

**Kin-Buc Landfill
Operable Unit 1
Gas Monitoring Well Network/Results**

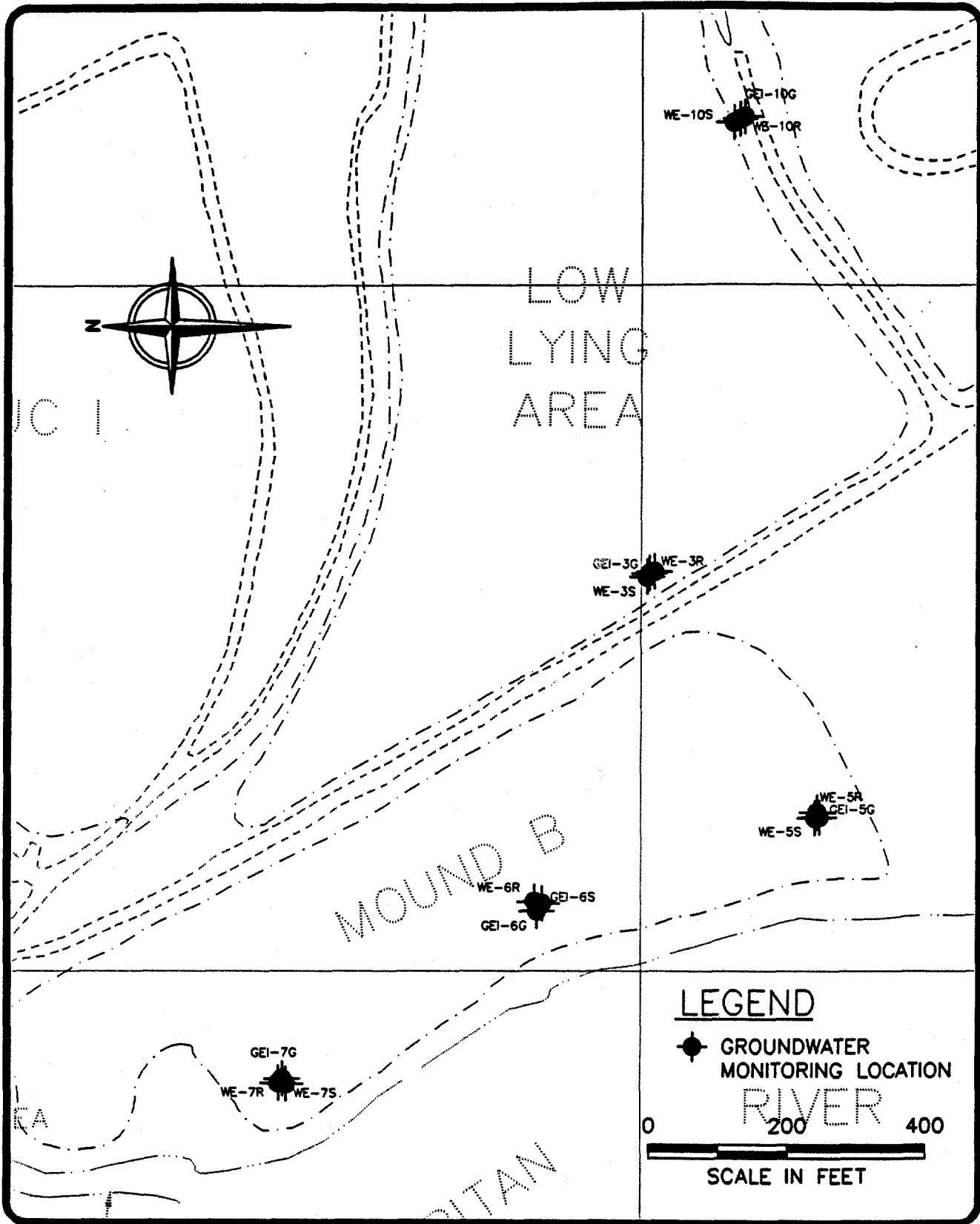
| Well (Network) Location | Monitoring Result | |
|-------------------------|-------------------|-------|
| | % LEL | % GAS |
| GMW-01 | 0 | 0 |
| GMW-02 | 0 | 0 |
| GMW-03 | 0 | 0 |
| GMW-04 | 0 | 0 |
| GMW-05 | 0 | 0 |
| GMW-06 | 0 | 0 |
| Operational Flare Inlet | NA | 53 |

Table 8-1
KinBuc Landfill Operable Units 1 and 2
Vertical Gradients Based on May 1996
Groundwater Elevation Measurements

| Well Designation | Gradient | Inside/Outside Slurry Wall |
|------------------|----------|----------------------------|
| OU1 | | |
| W-1G / W-1R | Down | Inside |
| W-3G / W-3S | Down | Inside |
| W-3S / W-3R | Down | Inside |
| W-5G / W-5S | Down | Inside |
| W-5S / W-5R | Up | Inside |
| W-7G / W-7S | Down | Inside |
| W-7S / W-7R | Down | Inside |
| W-9G / W-9R | Down | Inside |
| W-6G / W-6S | Down | Outside |
| W-6S / W-6R | Down | Outside |
| W-2G / W-2R | Down | Outside |
| W-4G / W-4S | Down | Outside |
| W-4S / W-4R | Down | Outside |
| W-8G / W-8S | Down | Outside |
| W-8S / W-8R | Down | Outside |
| W-10G / W-10R | Down | Outside |
| OU2 | | |
| GEI-10G / WE-10S | Down | |
| WE-10S / WE-10R | Up | |
| GEI-3G / WE-3S | Down | |
| WE-3S / WE-3R | Down | |
| GEI-5G / WE-5S | Down | |
| WE-5S / WE-5R | Down | |
| GEI-6G / GEI-6S | Down | |
| GEI-6S / WE-6R | Up | |
| GEI-7G / WE-7S | Up | |
| WE-7S / WE-7R | Up | |

FIGURES

ene-mtown2\data: F:\DWG\12568001\MAKBF-01.dwg Xrefs: 8X11P, MAKBE01, MAKBTW01, MAKBB01
 Scale: 1" = 200.0000 Date: 8/7/96 Time: 3:27 PM Operator: FDEGEORG



Emcon

DATE _____
 DWN DBT
 APP RB
 REV _____

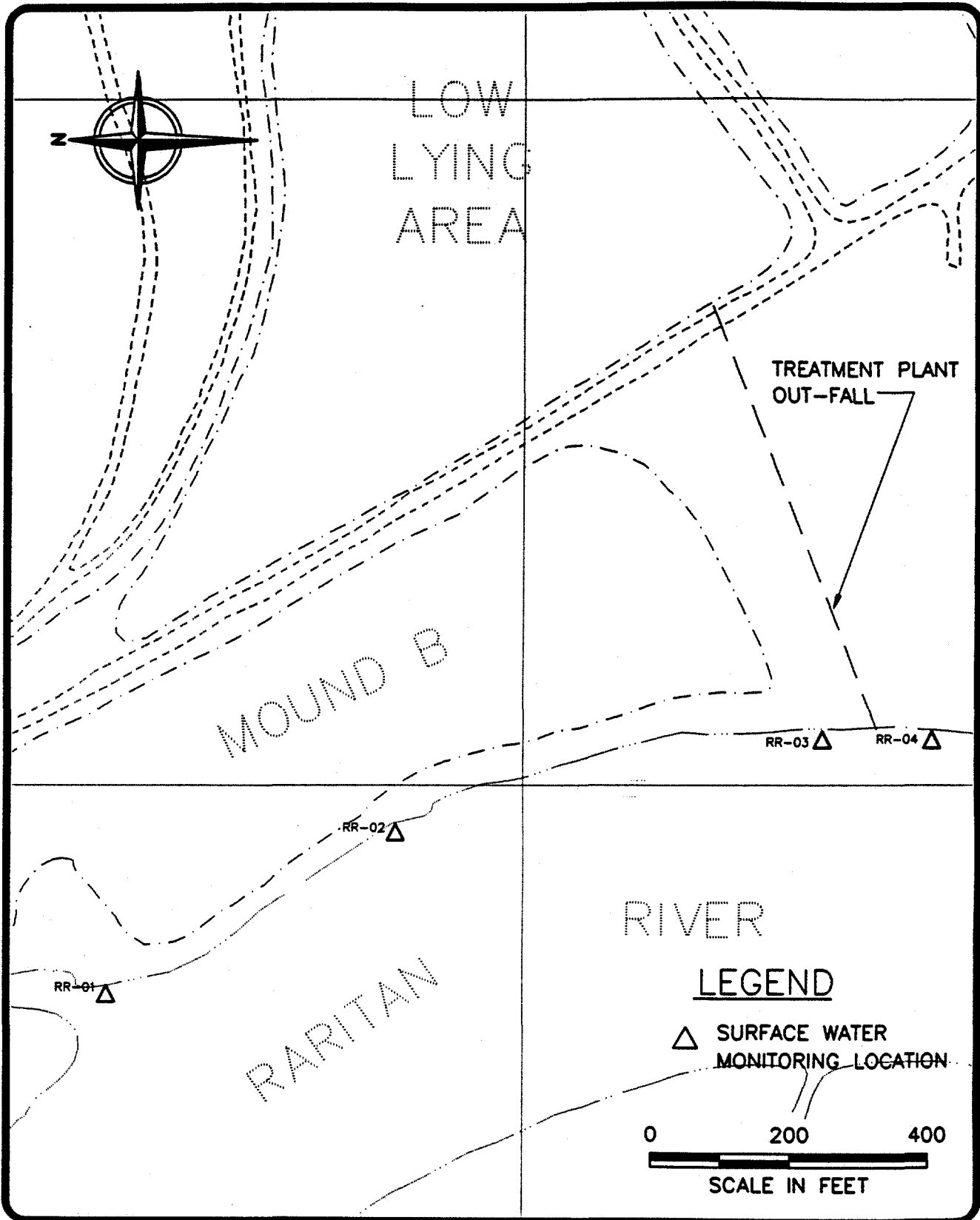
KINBUC LANDFILL
EDISON TOWNSHIP, NEW JERSEY
OU2 GROUNDWATER
MONITORING LOCATIONS

FIGURE

1-1

PROJECT NO.
12568-001.000

ene-mtown2\data\F\DWG\12568001\MAKBF-02.dwg Xrefs: 8X11P, MAKBE01, MAKBTW01, MAKBB001
Scale: 1" = 200.0000 Date: 8/7/96 Time: 3:26 PM Operator: FDEGEORG



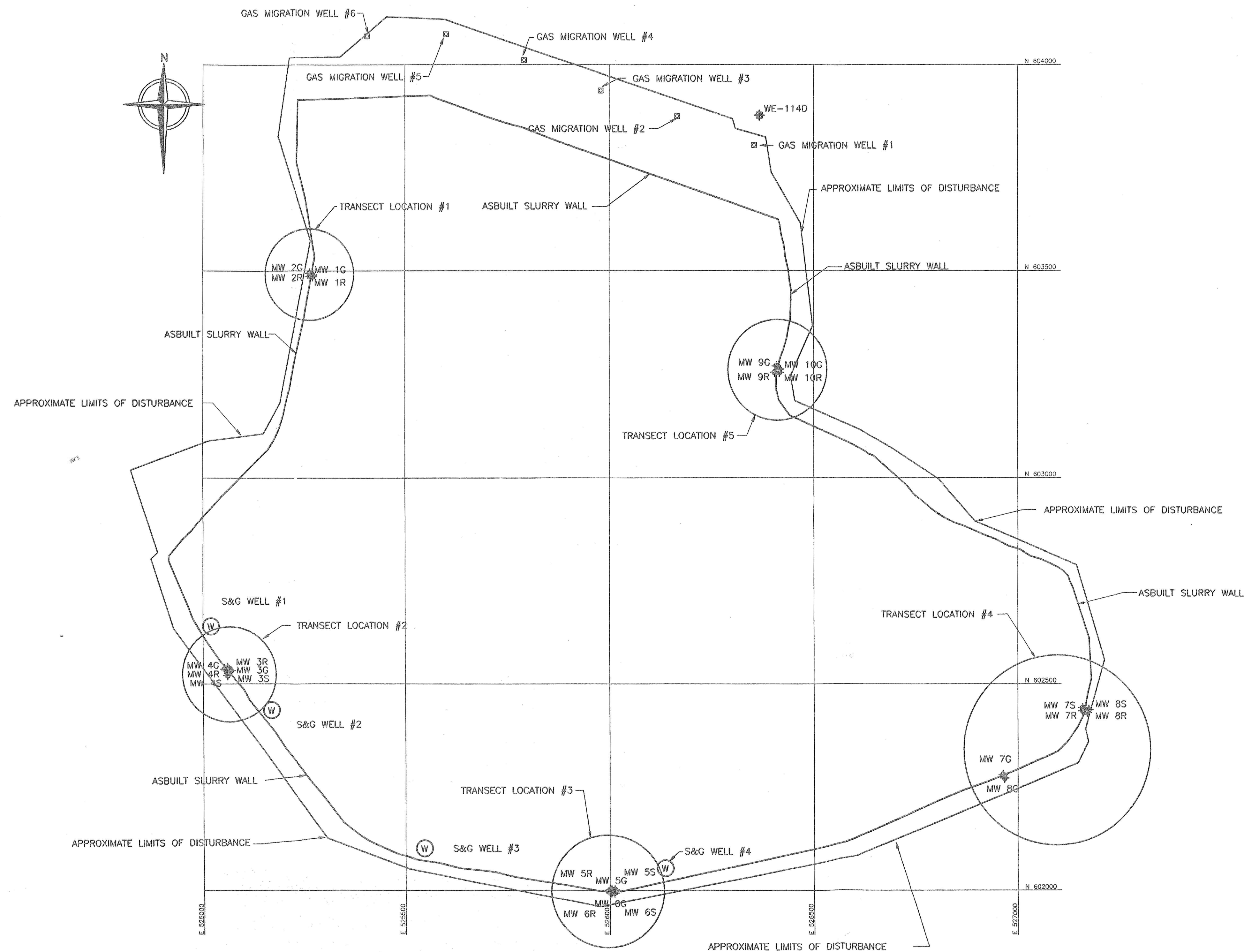
DATE _____
DWN DBT
APP RB
REV _____

KINBUC LANDFILL
EDISON TOWNSHIP, NEW JERSEY
OU2 SURFACE WATER
MONITORING LOCATIONS

FIGURE
1-2
PROJECT NO.
12568-001.000

DRAWING

500189



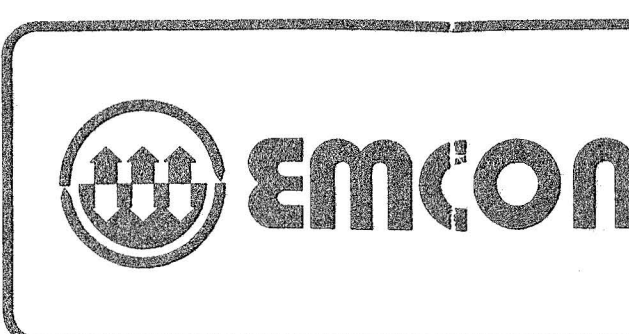
LEGEND

- ⊕ NEW MONITORING WELLS
- ⊕ NEW SAND & GRAVEL PUMPING WELLS
- ⊕ NEW GAS MIGRATION WELLS
- ⊕ OU2 UPGRAIDENT MONITORING WELL (APPROXIMATE LOCATION)

SOURCE: BASEMAP DATA TAKEN FROM PLAN SHEET 10A OF MAP ENTITLED "KINBUC LANDFILL FINAL WELL LOCATION PLAN" PREPARED BY CONTI ENVIRONMENTAL INC. DATED JULY 17, 1995.

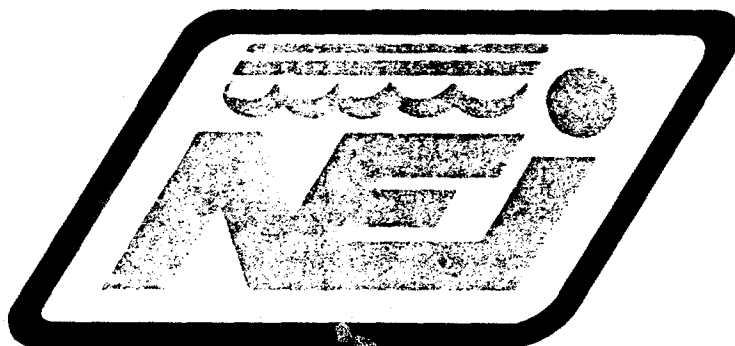
0 150 300
SCALE IN FEET

| REV | DATE | DESCRIPTION | DWN BY | DES BY | CHK BY | APP BY |
|-----|------|---------------|--------|--------|--------|--------|
| 1 | 5/96 | DATE OF ISSUE | SDT | RB | | |
| | | DES BY | RB | | | |



KIN-BUC LANDFILL
EDISON TOWNSHIP, NEW JERSEY
Second Edition 1996
OPERABLE UNIT 1 MONITORING NETWORK

DRAWING NO.
1
PROJECT NO.
12568-001.000



TOTAL ANALYTICAL SERVICES FOR A SAFE ENVIRONMENT
nytest environmental inc.

box 1518 = 60 seaview blvd., port washington, ny 11050 = (516) 625-5500 = fax (516) 625-1274

500192



TOTAL ANALYTICAL SERVICES FOR A SAFE ENVIRONMENT

nytest environmental inc.

June 27, 1996

Emcon
1433 North Market Blvd., Suite 2
Sacramento, CA 95833

Attn : Susan Hopper A/P Dept.
Ref : Kin-Buc LF 12568001000, OFF71-37-37.37.37
P.O. #: 3700053

Nyttest Environmental, Inc., is pleased to submit our Project Number 9522307 for Login Number 27538, SDG No. OU1A, on your sample(s) received 05/14/96.

We certify that this report is a true report of results obtained from our tests of this material.

Test sample(s) associated with this project will be retained for a period of thirty (30) days, unless otherwise instructed.

My staff is available to answer any questions concerning our report and we look forward to serving your future analytical needs.

Respectfully submitted,

Mike Shmookler, Ph.D.,
Laboratory Operations Manager
Nyttest Environmental, Inc.

Report to: EMCON
Corporate Crossroads Park
1 International Blvd., Suite 700
Mahwah, NJ 07495
Attn: Rich Calagero

Encl:
Shipped Via: Driver/Messenger

NYS Lab ID#10195
NJ Cert.#73469

Report on sample(s) furnished by client applies to sample(s). Report on sample(s) obtained by us applies to lot sampled. Information contained herein is not to be used for reproduction except by special permission. In the event that there are portions or parts of sample(s) remaining after Nytest has completed the required tests, Nytest shall have the option of returning such sample(s) to the client at the client's expense.

box 1518 ☐ 60 seaview blvd., port washington, ny 11050 ☐ (516) 625-5500
fax (516) 625-1274

500193



TOTAL ANALYTICAL SERVICES FOR A SAFE ENVIRONMENT

nytest environmental.

(516) 625-5500 FAX: (516) 625-1274

Chain of Custody Record

page #: 2 of 2

Client Name EMCON
 Address 771 Route 17A
Tuxedo, NY 10987
 Project Manager R. Colosiero
 Phone 914 351 5102 FAX 914 351 5199
 Project Name Kim Bue Quarterly
 Project Number 12568-001.000
 P.O. # _____
 Analytical Protocol SW-846 Deliverables NS Red
 Sampled By RB/BW/SL/GA

Analysis Requested

No. of Containers

Kim Bue Quarterly
 Parameters - no pH

OU 1 wells

Bin #'s In / Out (For Lab Use Only)

Login #: 007 27538

Ship to:

Nytest Environmental Inc.
 60 Seaview Blvd
 Port Washington N.Y. 11050
 Attn.: Sample Control

Date Shipped: _____

Carrier: _____

Air Bill #: _____

Cooler #: _____

C of C #: _____

SDG #: 041A

NEI QT #: _____

Comments

| Lab ID (Lab Use Only) | Sample ID (Maximum of 6 Characters) | Date Sampled | Time Sampled | Sample Location | No. of Containers | Bin #'s In / Out (For Lab Use Only) | Comments |
|--------------------------|---|-----------------|-----------------|--------------------|-------------------|-------------------------------------|---|
| 11 | W-4S | 5/14/86 | 1500 | # 011 | 6 | ✓ | |
| 12 | DUP | | | 012 | 6 | ✓ | |
| 13 | W-4R | | 1535 | 013 | 6 | ✓ | |
| 14 | W-3R | | 1545 | 014 | 6 | ✓ | |
| 15 | W-3G | | 1600 | 015 | 6 | ✓ | |
| 16 | W-3GMS | | 1600 | 016 | 6 | ✓ | |
| 17 | W-3GMSD | | 1600 | 017 | 6 | ✓ | |
| 18 | W-3S | | 1615 | 018 | 6 | ✓ | |
| 19 | W-5R | | 1635 | 019 | 6 | ✓ | * Keep SPGs open for more OU 1 wells |

| | | | | |
|--|----------------------------------|--|----------------------------------|--|
| Relinquished by: <u>Ronald Bierstine</u> | Date / Time: <u>5/14/86 1700</u> | Received by: <u>J. Tappert</u> | Date / Time: <u>5/14/86</u> | Lab Use Only Custody Seals: <u>Intact</u> Broken Absent Sample Rec'd in Good Condition?: <u>Y</u> N Sample Temperature: _____ Degrees Celsius INSPECTED BY: <u>(Signature)</u> COMMENTS: _____ |
| Print Name: <u>Ronald Bierstine</u> | | Print Name: <u>J. Tappert</u> | | |
| Relinquished by: _____ | Date / Time: _____ | Received by: _____ | Date / Time: _____ | |
| Print Name: _____ | | Print Name: _____ | | |
| Relinquished by: <u>J. Tappert</u> | Date / Time: <u>5/14/86 6:55</u> | Received by Laboratory: <u>(Signature)</u> | Date / Time: <u>5/14/86 6:55</u> | |
| Print Name: <u>J. Tappert</u> | | Print Name: <u>(Signature)</u> | | |

Special Instructions: _____

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NYTEST ENVIRONMENTAL Inc.

SDG: OU1A

| LABORATORY NUMBER | SAMPLE IDENTIFICATION | TYPE OF SAMPLE |
|----------------------|--------------------------|-------------------|
| 2753801 | FB-01 | Water |
| 2753802 | W-2G | Water |
| 2753803 | W-1G | Water |
| 2753804 | W-4G | Water |
| 2753805 | W-9G | Water |
| 2753806 | W-10G | Water |
| 2753807 | W-9R | Water |
| 2753808 | W-10R | Water |
| 2753809 | W-1R | Water |
| 2753810 | W-2R | Water |
| 2753811 | W-4S | Water |
| 2753812 | DUP | Water |
| 2753813 | W-4R | Water |
| 2753814 | W-3R | Water |
| 2753815 | W-3G | Water |
| 2753816 | W-3GMS | Water |
| 2753817 | W-3GMSD | Water |
| 2753818 | W-3S | Water |
| 2753819 | W-5R | Water |

500197

INTERNAL CHAIN OF CUSTODY

| SAMPLE NO. | ALIQOT/EXTRACT NO. | SAMPLE NO. | ALIQOT/EXTRACT NO. |
|------------|--------------------|------------|--------------------|
| FG-01 | 27528-01 | W-46 | 27528 |
| W-26 | 02 | 01 | |
| W-16 | 03 | W-16 | |
| W-46 | 04 | W-38 | |
| W-76 | 05 | W-76 | |
| W-60 | 06 | W-60 | |
| W-70 | 07 | W-70 | |
| W-10 | 08 | W-10 | |
| W-18 | 09 | W-18 | |
| W-14 | 10 | W-14 | |
| W-30 | 11 | W-30 | |

| DATE | TIME | RELINQUISHED BY | RECEIVED BY | PURPOSE OF CHANGE OF CUSTODY |
|---------|------|-----------------------------------|-----------------------------------|------------------------------|
| 5/15/90 | 0900 | PRINTED NAME M. J. [illegible] | PRINTED NAME M. J. [illegible] | [illegible] |
| | | SIGNATURE [illegible] | SIGNATURE [illegible] | |
| 5/17/90 | 0900 | PRINTED NAME M. J. [illegible] | PRINTED NAME MARIA GUTENSKI | [illegible] |
| | | SIGNATURE [illegible] | SIGNATURE Maria Gutenski | |
| 5/17/90 | 1000 | PRINTED NAME MARIA GUTENSKI | PRINTED NAME [illegible] | [illegible] |
| | | SIGNATURE Maria Gutenski | SIGNATURE [illegible] | |
| 5/17/90 | 1000 | PRINTED NAME P. Pieniez | PRINTED NAME [illegible] | [illegible] |
| | | SIGNATURE [illegible] | SIGNATURE [illegible] | |
| 5/17/90 | 0745 | PRINTED NAME P. Pieniez | PRINTED NAME Hanguo Wu | NH3 |
| | | SIGNATURE [illegible] | SIGNATURE [illegible] | |
| 5/17/90 | 0750 | PRINTED NAME P. Pieniez | PRINTED NAME C. [illegible] | metals |
| | | SIGNATURE [illegible] | SIGNATURE [illegible] | |
| 5/17/90 | 1700 | PRINTED NAME Hanguo Wu | PRINTED NAME [illegible] | [illegible] |
| | | SIGNATURE [illegible] | SIGNATURE [illegible] | |
| 5/17/90 | | PRINTED NAME [illegible] | PRINTED NAME MARIA GUTENSKI | [illegible] |
| | | SIGNATURE [illegible] | SIGNATURE [illegible] | |

500198

NEI INTERNAL CHAIN OF CUSTODY RECORD

LOGIN _____

| DATE | TIME | RELINQUISHED BY: | | RECEIVED BY: | | REASON FOR CHANGE COMMENTS |
|---------|-------|------------------|-----------------|--------------|-------------|-------------------------------|
| 4/20/96 | 1401 | PRINT | C. O'SS | PRINT | P. Penney | Storage |
| | | SIGNATURE | (VOR) | SIGNATURE | (Penney) | |
| 5/2/96 | 1322 | PRINT | HELENA GATENSKA | PRINT | M. LANI | Storage |
| | | SIGNATURE | Hele Gaten | SIGNATURE | m. Lan | |
| 5/11/96 | 0831 | PRINT | M. LANI | PRINT | Hanguo Wu | NO3/NO2 |
| | | SIGNATURE | m. Lan | SIGNATURE | H. Wu | |
| 5/11/96 | 0900 | PRINT | M. LANI | PRINT | M. Penney | TD's |
| | | SIGNATURE | m. Lan | SIGNATURE | M. Penney | |
| 5/21/96 | 13:30 | PRINT | M. Penney | PRINT | R. Fitch | Storage |
| | | SIGNATURE | M. Penney | SIGNATURE | R. Fitch | |
| 5/21/96 | 1630 | PRINT | Hanguo Wu | PRINT | M. LANI | Storage |
| | | SIGNATURE | H. Wu | SIGNATURE | m. Lan | |
| 5/5 | | PRINT | M. LANI | PRINT | M. Penney | SO4 |
| | | SIGNATURE | m. Lan | SIGNATURE | M. Penney | |
| 5/30/96 | 1630 | PRINT | M. Penney | PRINT | M. LANI | SO4 |
| | | SIGNATURE | M. Penney | SIGNATURE | m. Lan | |
| 6/3/96 | 0800 | PRINT | P. Penney | PRINT | A. Frimpong | He |
| | | SIGNATURE | (Penney) | SIGNATURE | A. Frimpong | |
| 6/3/96 | 1415 | PRINT | A. Frimpong | PRINT | M. LANI | Storage |
| | | SIGNATURE | A. Frimpong | SIGNATURE | m. Lan | |
| 6/4/96 | 2000 | PRINT | M. LANI | PRINT | J. GARY | CC |
| | | SIGNATURE | m. Lan | SIGNATURE | J. Gary | |
| 6/4/96 | 2100 | PRINT | J. GARY | PRINT | M. LANI | Storage |
| | | SIGNATURE | J. Gary | SIGNATURE | m. Lan | |
| 6/9/96 | 1800 | PRINT | M. LANI | PRINT | K. VACON | TOC |
| | | SIGNATURE | m. Lan | SIGNATURE | (Vacon) | |
| | | PRINT | M. LANI | PRINT | Ignateva | Photo |
| | | SIGNATURE | m. Lan | SIGNATURE | Ignateva | |
| | | PRINT | | PRINT | | |
| | | SIGNATURE | | SIGNATURE | | |
| | | PRINT | | PRINT | | |
| | | SIGNATURE | | SIGNATURE | | |

000005

LABORATORY DELIVERABLES

Check if
Complete

- | | |
|---|-----------|
| 1. Cover page, Title page listing Lab Certification# facility name & address, & date of report | <u>✓</u> |
| 2. Table of Contents | <u>✓</u> |
| 3. Summary sheets listing analytical results for all targeted and non-targeted compounds | <u>NA</u> |
| 4. Summary Table cross-referencing field ID #'s vs. Lab ID #'s | <u>✓</u> |
| 5. Document bound, paginated and legible | <u>✓</u> |
| 6. Chain of Custody | <u>✓</u> |
| 7. Methodology Summary | <u>✓</u> |
| 8. Laboratory Chronicle and Holding Time check | <u>✓</u> |
| 9. Results submitted on a dry weight basis (if applicable) | <u>NA</u> |
| 10. Method Detection Limits | <u>NA</u> |
| 11. Lab certified by NJDEPE for parameters or appropriate category of parameters or a member of the USEPA CLP | <u>✓</u> |
| 12. Non-Conformance Summary | <u>✓</u> |

Michael Thomas

Laboratory Manager or Environmental
Consultant's Signature

6/28/96

Date

METAL ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY FORMAT

| | <u>No</u> | <u>Yes</u> |
|---|-----------|------------|
| 1. Calibration Summary Meet Criteria | — | ✓ |
| 2. ICP Interference Check Sample Results Summary Submitted (if applicable) / Meet Criteria | — | ✓ |
| 3. Serial Dilution Summary Submitted (if applicable) / Meet Criteria | — | ✓ |
| 4. Laboratory Control Sample Summary Submitted (if applicable) / Meet Criteria | — | ✓ |
| 5. Blank Contamination - If yes, list compounds concentrations in each blank: | ✓ | — |
| <hr/> | | |
| 6. Matrix Spike/Matrix Spike Duplicate Recoveries Meet Criteria (If not met, list those compounds and their recoveries which fall outside the acceptable range) | ✓ | — |
| <u>See forms</u> | | |
| 7. Extraction Holding Time Met | — | ✓ |
| If not met, list number of days exceeded for each sample: <hr/> | | |
| <hr/> | | |
| 8. Analysis Holding Time Met | — | ✓ |
| If not met, list number of days exceeded for each sample: <hr/> | | |
| <hr/> | | |

Additional Comments:

Laboratory Manager: Michael A. Small Date: 6/28/96

Laboratory Chronicle

Client Name: Emcon
Date Received: 05/14/96
Sample ID: As per chain of custody

Log In No.: 27538

Inorganics:

Digested: 05/17/96, 05/20/96

1. Metals _____
Analyzed: 05/20/96, 05/21/96, 05/23/96
2. Metals _____
06/14/96
3. Phenol _____

Other Analysis:

Ammonia Nitrogen: 05/17/96

BOD: 05/15/96, 05/20/96

Chloride: 06/04/96

COO: 05/20/96

Color: 05/16/96

Fecal Coliforms, Fecal Strep, Total Coliforms: 05/15/96

Sulfate: 05/30/96

TDS: 05/21/96, 05/24/96

TOC: 06/10/96

Surfactants: 05/14/96

Nitrate: 05/21/96

Section Supervisor
Review & Approval

Michael Schmoll

Quality Control Supervisor
Review & Approval

Michael Schmoll

Dates are included for re-extractions and reanalysis.

500202

CASE NARRATIVE
METALS

Login No: 27538

SDG No: OU1A

HOLDING TIMES

All samples associated with this SDG/LOGIN were prepared and analyzed within the specified holding time.

CALIBRATIONS

All ICV and CCV standards meet QC criteria.

The percent recovery of all components in the CRDL standard recovered within NEI control limits of $\pm 50\%$. Note that CLP SOW ILM03.0 does not specify control limits for the CRDL standard.

BLANKS

All preparation blanks and calibration blanks associated with these analyses meet QC criteria.

MATRIX SPIKES

Sample W-3G was utilized as the matrix spike sample for these analyses.

All matrix spike recoveries met the 75-125% recovery criteria, with the exception of Zn. A post-digestion spike was performed for the affected analytes and is reported on Form 5B. Note that a post-digestion spike is not required for silver.

The appropriate reporting qualifiers have been applied to the Form 1 results as required.

DUPLICATES

Sample W-3G was utilized as the duplicate sample for these analyses.

All Relative Percent Differences (RPDs) met QC criteria, with the exception of Pb. The appropriate reporting qualifiers have been applied to the Form 1 results as required.

Note that all RPDs of 200% are due to one analyte being reported above the Instrument Detection Limit (IDL) and one result below the IDL.

500203

LABORATORY CONTROL SAMPLE (LCS)

The percent recovery of all components in the LCS met QC criteria.

SERIAL DILUTION

A serial dilution was performed on sample W-3G. All percent differences (%D) were within the $\pm 10\%$ acceptance limits, with the exception of Na, Zn, indicating a potential interference on sample quantitation from the sample matrix.

SAMPLES

All samples were analyzed in accordance with the requirements of the methods described in SW-846 Method 6010A.

No further analytical problems were encountered.

SPECIAL PROJECT NOTES

None.

I certify that this data package has been reviewed for the quality control and quality assurance measures for all analyzed methodologies.

Michael Shmookler

Michael Shmookler, Ph.D.
Laboratory Operations Manager

500205

METHODOLOGY SUMMARY

| AQUEOUS METHODOLOGIES: | REF 1 | REF 2 | REF 3 | REF 5 |
|---|-------|------------------------------|---------|-------|
| BNA, Pesticides/PCB's Extraction | | 3510/3520 | | |
| AA/ICP Sample Preparation | 200.7 | | | |
| Furnace Sample Preparation | 200.0 | | | |
| Mercury Sample Preparation | 245.1 | | | |
| Hexavalent Chromium Sample Preparation | 218.5 | | | |
| Clean-Up | | 3610/3620/3630/ 3640/3660 | | |
| Organochlorine Pesticide and PCB's by Gas Chromatography | | | 608 | 505 |
| Herbicides by Gas Chromatography | | | 362 | 515.1 |
| Purgeable Organics by GC/MS | | | 624 | 524.2 |
| Base/Neutral, Acids by GC/MS | | | 625 | 525 |
| 2,3,7,8-TCDD by GC/MS | | | 613/625 | |
| BTEX | | | 602 | 502.2 |
| PDB/DBCP by Microextraction | | | | 504.1 |
| NON-AQUEOUS METHODOLOGIES: | | | | |
| BNA, Pesticides/PCB's Extraction | | 3550 | | |
| AA/ICP Sample Preparation | | 3050 | | |
| Furnace Sample Preparation | | 3020/3030/3050 | | |
| Mercury Sample Preparation | | 7471 | | |
| Clean-Up | | 3610/3620/3630/ 3640/3660 | | |
| GC, Gas Chromatography/Mass Spectrometry: | | | | |
| Purgeable Organics | | 8240/8021 | | |
| Base/Neutral and Acid Extractables | | 8270 | | |
| Organophosphorus Pesticides | | 8140 | | |
| Organochlorine Pesticide and PCB's by Gas Chromatography | | 8080 | | |
| BTEX | | 8020 | | |
| Halogenated Purgeable Organics | | 8010 | | |

500206

METHODOLOGY SUMMARY

| INDUCTIVELY COUPLED PLASMA (ICP): | REFERENCE 1 | REFERENCE 2 |
|-----------------------------------|-------------|-------------------------|
| Aluminum | 200.7 | 6010 |
| Antimony | 200.7 | 6010 |
| Barium | 200.7 | 6010 |
| Beryllium | 200.7 | 6010 |
| Cadmium | 200.7 | 6010 |
| Calcium | 200.7 | 6010 |
| Chromium | 200.7 | 6010 |
| Cobalt | 200.7 | 6010 |
| Copper | 200.7 | 6010 |
| Iron | 200.7 | 6010 |
| Lead | 200.7 | 6010 |
| Magnesium | 200.7 | 6010 |
| Manganese | 200.7 | 6010 |
| Molybdenum | 200.7 | 6010 |
| Nickel | 200.7 | 6010 |
| Potassium | 200.7 | 6010 |
| Silver | 200.7 | 6010 |
| Sodium | 200.7 | 6010 |
| Tin | 200.7 | 6010 |
| Titanium | 200.7 | 6010 |
| Vanadium | 200.7 | 6010 |
| Zinc | 200.7 | 6010 |
| FURNACE AA: | | |
| Antimony | 204.1 | 7041 |
| Arsenic | 206.2 | 7060 |
| Lead | 239.2 | 7421 |
| Selenium | 270.2 | 7740 |
| Thallium | 279.2 | 7841 |
| Tin | 282.2 | |
| Vanadium | 286.2 | 7911 |
| Mercury | 245.1 | 7470/7471 |
| ICAP: | | |
| Priority Pollutants | 200.7 | 6010/7060/ 7470/7740 |
| TAL Metals | 200.7 | 6010/7060/ 7470/7740 |
| RCRA Metals | 200.7 | 6010/7060/ 7470/7740 |

000013

METHODOLOGY SUMMARY

ADDITIONAL INORGANIC PARAMETERS:

| | REFERENCE 1 | REFERENCE 2 |
|--------------------------------------|-------------|----------------|
| Biochemical Oxygen Demand | 405.1 | |
| Bromide | 320.1 | |
| Color | 110.2 | |
| Conductance | 120.1 | |
| Conductance | | 9050 |
| Odor | 140.1 | |
| pH | 150.1 | |
| pH | | 9045/9040/9041 |
| TDS | 160.1 | |
| TSS | 160.2 | |
| TS | 160.3 | |
| Hardness | 130.1 | |
| Temperature | 170.1 | |
| Turbidity | 180.1 | |
| Acidity | 305.1 | |
| Alkalinity | 310.1 | |
| Ammonia | 350.2/350.3 | |
| Chloride | 325.3 | |
| Chloride | | 9252 |
| Residual Chlorine | 330.2 | |
| COD | 410.3/410.4 | |
| Cyanide (Total & Amenable) | 335.3/335.1 | 9010/9012 |
| Oil & Grease | 413.1/413.2 | |
| Oil & Grease | | 9070/9071 |
| Fluoride | 340.2 | |
| TKN | 351.2 | |
| NO2/NO3 | 353.2 | 9200 |
| D.O | 360.2 | |
| Petroleum Hydrocarbons (Reference 4) | 418.1 | 9066 |
| Phenol | 420.2 | |
| Phosphorus | 365.1 | |
| Settleable Solids | 160.5 | |
| Silica | 370.1 | |
| Sulfate | 375.2/375.4 | 9038 |
| Sulfide | 376.1 | 9030 |
| Surfactants | 425.1 | |
| TOC | 415.1 | 9060 |
| TOX | | 9020 |

MISCELLANEOUS ANALYSIS:

| | |
|---|---------------------|
| Extraction Procedure Toxicity | 1310 |
| Ignitability | 1010 |
| Corrosivity | 1110 |
| Reactivity | Chapter 8.3 |
| Paint Filter Liquid Test | 9095 |
| Toxicity Characteristic Leaching Procedure (TCLP) | |
| Cation Exchange Capacity of Soils | 000014 (REF 4) 9080 |

METHODOLOGY SUMMARY

REFERENCE 6

Total Coliform
Fecal Coliform
Fecal Streptococcus Coliform
Standard Plate Count
Hexavalent Chromium
Carbonaceous BOD

909A
9096
910B
907
312B
507

METHODOLOGY SUMMARY

REFERENCES:

- (1) USEPA-600/4-79-020, Methods for Chemical Analysis of Water and Waste
- (2) USEPA SW 846, Test Methods for Evaluating Solid Waste, Third Edition
- (3) Federal Register 40 CFR Part 136, Vol.49, No.209 Test Parameters for the Analysis of Pollutants
- (4) Federal Register Vol.51, No.216 Friday, 11/7/86, pp.40643-40652
- (5) Method for the Determination of Organic Compounds in Drinking Water, EPA 500/4-88/039, Dec. 1988
- (6) Standard Method for Examination of Water and Wastewater, 15 Edition 1980

nytest environmental_{nc}

Method Qualifiers for Inorganics

FORM I-IN includes fields for three types of results qualifiers. These qualifiers must be completed as follows:

- * C (Concentration) qualifier -- Enter "B" if the reported value was obtained from a reading that was less than the Contract Required Detection Limit (CRDL) but greater than or equal to the Instrument Detection Limit (IDL). If the analyte was analyzed for but not detected, a "U" must be entered.
- * Q qualifier -- Specified entries and their meanings are as follows:
 - E - The reported value is estimated because of the presence of interference.
 - M - Duplicate precision not met (CV > 20%).
 - N - Spiked sample recovery not within control limits.
 - S - The reported value was determined by Method of Standard Addition (MSA).
 - W - Post-digestion spike for Furnace AA analysis is out of control limits (85 - 115%), while sample absorbance is less than 50% of spike absorbance.
 - * - Duplicate analysis not within control limits.
 - + - Correlation Coefficient for the MSA is less than 0.995.Entering "S", "W" or "+" is mutually exclusive.
- * M (Method) qualifier - enter:
 - "P" for ICP
 - "A" for Flame AA
 - "F" for Furnace AA
 - "CV" for Cold Vapor AA
 - "AV" for Automated Cold Vapor AA
 - "AS" for Semi-Automated Spectrophotometric
 - "C" for Manual Spectrophotometric
 - "T" for Titrimetric
 - "NR" if the analyte is not required to be analyzed.

METALS DATA

000018

500212

INORGANICS ANALYSIS DATA SHEET

FB-01

Percent Solids : 0.0

INORGANICS ANALYSIS DATA SHEET

Lab Name: NYTEST ENV INC

Contract: 9622307

W-2G

Lab Code: NYTEST

Login No.: 27538

QC Report No. OU1A

Matrix (soil/water): WATER

Lab Sample ID: 753802

Level (low/high) : LOW

Date Received: 05/14/96

Percent Solids : 0.0

[illegible]

P: ICP; F: GFAA; CV: Cold Vapor; AS: Automated Spectrophotometric
Note: A "U" in the "C" (Concentration) column indicates the analyte was
not detected in this sample; "B" = Sample value greater than Instrument
Detection Limit, but less than reporting limit; "NR" = Not Required.

W-2G NA AT A 5X DILUTION

INORGANICS ANALYSIS DATA SHEET

Lab Name: NYTEST ENV INC

Contract: 9622307

W-1G

Lab Code: NYTEST

Login No.: 27538

QC Report No. OU1A

Matrix (soil/water): WATER

Lab Sample ID: 753803

Level (low/high) : LOW

Date Received: 05/14/96

Percent Solids : 0.0

[illegible]

P: ICP; F : GFAA; CV: Cold Vapor; AS: Automated Spectrophotometric
Note: A "U" in the "C" (Concentration) column indicates the analyte was
not detected in this sample; "B" = Sample value greater than Instrument
Detection Limit, but less than reporting limit; "NR" = Not Required.

Comments:

W-1G NA AT A 5X DILUTION

SAMPLE NO.

W-4G

QC Report No. OU1A

Lab Sample ID: 753804
Date Received: 05/14/96

[illegible]

W-4G NA AT A 10X DILUTION

INORGANICS ANALYSIS DATA SHEET

W-9G

Lab Sample ID: 753805
Date Received: 05/14/96

[illegible]

W-9G

SAMPLE NO.

W-10G

QC Report No. OU1A

Lab Sample ID: 753806
Date Received: 05/14/96

[illegible]

W-10G

INORGANICS ANALYSIS DATA SHEET

W-9R

Percent Solids : 0.0

SAMPLE NO.

W-1R

Percent Solids : 0.0

[illegible]

FE AT A 10X DILUTION

INORGANICS ANALYSIS DATA SHEET

W-2R

Percent Solids : 0.0

INORGANICS ANALYSIS DATA SHEET

Lab Name: NYTEST ENV INC Contract: 9622307

W-4S

Lab Code: NYTEST Login No.: 27538 QC Report No.OU1A

Lab Sample ID: 753811

Date Received: 05/14/96

Percent Solids : 0.0

[illegible]

P: ICP; F : GFAA; CV: Cold Vapor; AS: Automated Spectrophotometric
Note: A "U" in the "C" (Concentration) column indicates the analyte was
not detected in this sample; "B" = Sample value greater than Instrument
Detection Limit, but less than reporting limit; "NR" = Not Required.

W-4S NA AT A 20X DILUTION

INORGANICS ANALYSIS DATA SHEET

W-4R

Percent Solids : 0.0

SAMPLE NO.

W-3G

QC Report No.OU1A

Lab Sample ID: 753815
Date Received: 05/14/96

[illegible]

P: ICP; F : GFAA; CV: Cold Vapor; AS: Automated Spectrophotometric
Note: A "U" in the "C" (Concentration) column indicates the analyte was
not detected in this sample; "B" = Sample value greater than Instrument
Detection Limit, but less than reporting limit; "NR" = Not Required.

W-3G NA AT A 20X DILUTION

INORGANICS ANALYSIS DATA SHEET

W-3S

Percent Solids : 0.0

INORGANICS ANALYSIS DATA SHEET

W-5R

Percent Solids : 0.0

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Continuing Calibration Source: SPEX

NYTEST ENVIRONMENTAL INC.

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: NYTEST_ENV_INC_____

Contract: 9622307

Lab Code: NYTEST

Login No.: 27538_

QC Report No.: OUIA

Initial Calibration Source: SPEX

Continuing Calibration Source: SPEX_____

Concentration Units: ug/L

[illegible]

NR : Analyte Not Required

NYTEST ENVIRONMENTAL INC.

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: NYTEST ENV INC

Contract: 9622307

Lab Code: NYTEST

Login No.: 27538

QC Report No.: OU1A

Initial Calibration Source: SPEX

Continuing Calibration Source: SPEX

Concentration Units: ug/L

[illegible]

NR : Analyte Not Required

NYTEST ENVIRONMENTAL INC.

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: NYTEST ENV INC

Contract: 9622307

Lab Code: NYTEST

Login No.: 27538_

QC Report No.: OU1A

Initial Calibration Source: SPEX

Continuing Calibration Source: SPEX

Concentration Units: ug/L

[illegible]

NR : Analyte Not Required

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Continuing Calibration Source: SPEX

NYTEST ENVIRONMENTAL INC.

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: NYTEST_ENV_INC_____

Contract: 9622307

Lab Code: NYTEST Login No.: 27538_

QC Report No.: OU1A

Initial Calibration Source: SPEX

Continuing Calibration Source: SPEX_____

Concentration Units: ug/L

NR : Analyte Not Required

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Continuing Calibration Source: SPEX_____

Concentration Units: ug/L

[illegible]

NR : Analyte Not Required

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Continuing Calibration Source: SPEX

Concentration Units: ug/L

[illegible]

500237

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Continuing Calibration Source: SPEX

[illegible]

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Continuing Calibration Source: SPEX

CRDL STANDARD FOR AA AND ICP

ICP CRDL Standard Source: SPEX

[illegible]

CRDL STANDARD FOR AA AND ICP

ICP CRDL Standard Source: SPEX

CRDL STANDARD FOR AA AND ICP

ICP CRDL Standard Source: SPEX

CRDL STANDARD FOR AA AND ICP

ICP CRDL Standard Source: SPEX

Concentration Units: ug/L

ANALYTICAL AND METHOD BLANK SUMMARY

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L_

[illegible]

500244

ANALYTICAL AND METHOD BLANK SUMMARY

Preparation Blank Concentration Units (ug/L or mg/kg): _____

[illegible]

NR = Analyte Not Requested

ANALYTICAL AND METHOD BLANK SUMMARY

Preparation Blank Concentration Units (ug/L or mg/kg): _____

NR = Analyte Not Requested

NYTEST ENVIRONMENTAL INC.

ANALYTICAL AND METHOD BLANK SUMMARY

Lab Name: NYTEST ENV INC

Contract: 9622307

Lab Code: NYTEST Login No.: 27538

QC Report No.: OU1A

Preparation Blank Matrix (soil/water): _____

Preparation Blank Concentration Units (ug/L or mg/kg): _____

NR = Analyte Not Requested

NEI FORM 4 - (9/93)

500247

ANALYTICAL AND METHOD BLANK SUMMARY

Preparation Blank Concentration Units (ug/L or mg/kg): _____

NR = Analyte Not Requested

ANALYTICAL AND METHOD BLANK SUMMARY

Preparation Blank Concentration Units (ug/L or mg/kg): _____

500249

ICP INTERFERENCE CHECK SAMPLE

ICS Source: EPA

ICP INTERFERENCE CHECK SAMPLE

ICS Source: EPA

ICP INTERFERENCE CHECK SAMPLE

ICS Source: EPA

ICP INTERFERENCE CHECK SAMPLE

ICS Source: EPA

MATRIX SPIKE RECOVERY DATA SHEET

W-3GMSD

Contract: 9622307

QC Report No. : OU1A

Level (low/med): LOW

Concentration Units (ug/L or mg/kg dry weight): UG/L

Comments:

W-3GMSD

NYTEST ENVIRONMENTAL INC.

SAMPLE NO.

POST DIGEST SPIKE SAMPLE RECOVERY

W-3GA

Lab Name: NYTEST ENV INC Contract: 9622307

Lab Code: NYTEST Login No.: 27538

QC Report No. : OU1A

Matrix (soil/water) : WATER

Level (low/med): LOW

Concentration Units: ug/L

Comments:

W-3G

NR = Analyte Not Requested

NEI FORM 7 - (9/93)

500255

NYTEST ENVIRONMENTAL INC.

SAMPLE NO.

DUPLICATES

Lab Name: NYTEST ENV INC Contract: 9622307

W-3GMS

Lab Code: NYTEST Login No.: 27538

QC Report No. : OU1A

Matrix (soil/water): WATER

Level (low/med): LOW

% Solids for Sample: 0.0

% Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

[illegible]

NR : Analyte Not Requested

LABORATORY CONTROL SAMPLE

Aqueous LCS Source: SPEX

LABORATORY CONTROL SAMPLE

Aqueous LCS Source: SPEX_____

NEI FORM 9 - (9/93)

500258

ICP SERIAL DILUTION

W-3GL

Level (low/med): LOW

NYTEST ENVIRONMENTAL INC.

Instrument Detection Limits (Quarterly)

Lab Name: NYTEST_ENV_INC Contract: 9622307

Lab Code: NYTEST Login No.: 27538 SDG No.: OU1A

ICP ID Number: TRACE Date: 04/16/96

Flame AA ID Number : _____

Furnace AA ID Number : _____

Comments:

REPORT OF ANALYSIS

Log In No.: 27538

We find as follows:

| CLIENT ID | LAB ID | Biochemical Oxygen Demand mg/L | Chloride mg/L | Chemical Oxygen Demand mg/L | Color Pt - Co | Fecal Coliforms colonies/100 mL | Fecal Strep colonies/100 mL | Total Coliforms colonies/100 mL |
|-----------|---------|--------------------------------------|------------------|-----------------------------------|------------------|---------------------------------------|-----------------------------------|---------------------------------------|
| FB-01 | 2753801 | 3.0 U | 1.0 U | 3.0 U | 10 U | 1.0 U | 1.0 U | 1.0 U |
| W-2G | 2753802 | 11.7 | 455 | 193 | 2000 | 1.0 U | 1.0 U | 1.0 U |
| W-1G | 2753803 | 5.0 | 1130 | 170 | 300 | 1.0 U | 1.0 U | 1.0 U |
| W-4G | 2753804 | 45 | 970 | 826 | 400 | 1.0 U | 1.0 U | 1.0 U |
| W-9G | 2753805 | 10.5 | 350 | 52.6 | 200 | 1.0 U | 1.0 U | 1.0 U |
| W-10G | 2753806 | 3.0 U | 40.2 | 18.7 | 300 | 1.0 U | 1.0 U | 1.0 U |
| W-9R | 2753807 | 3.0 U | 130 | 3.0 U | 300 | 1.0 U | 1.0 U | 1.0 U |
| W-10R | 2753808 | 3.0 U | 26.1 | 3.0 U | 100 | 1.0 U | 1.0 U | 1.0 U |
| W-1R | 2753809 | 19900 | 1.0 U | 27700 | 2000 | 1.0 U | 1.0 U | 1.0 U |
| W-2R | 2753810 | 10200 | 1.0 U | 24100 | 2000 | 1.0 U | 1.0 U | 1.0 U |
| W-4S | 2753811 | 41.7 | 2600 | 611 | 2500 | 1.0 U | 1.0 U | 1.0 U |
| DUP | 2753812 | 41.3 | 620 | 647 | 1500 | 1.0 U | 1.0 U | 1.0 U |
| W-4R | 2753813 | 3.0 U | 2350 | 179 | 200 | 1.0 U | 1.0 U | 1.0 U |
| W-3R | 2753814 | 3.7 | 2220 | 672 | 1000 | 1.0 U | 1.0 U | 1.0 U |
| W-3G | 2753815 | 108 | 1450 | 1660 | 1500 | 1.0 U | 1.0 U | 1.0 U |
| W-3S | 2753818 | 156 | 2420 | 1720 | 2000 | 1.0 U | 1.0 U | 1.0 U |
| W-5R | 2753819 | 15 | 4370 | 276 | 1000 | 1.0 U | 1.0 U | 50000 |
| Method | Blank | 3.0 U | 1.0 U | 3.0 U | 10 U | 1.0 U | 1.0 U | 1.0 U |

| CLIENT ID | LAB ID | Surfactants mg/L | Ammonia Nitrogen mg/L | Nitrate mg/L | Phenol mg/L | Sulfate mg/L | Total Dissolved Solids mg/L | Total Organic Carbon mg/L |
|-----------|---------|---------------------|-----------------------------|-----------------|----------------|-----------------|--------------------------------------|------------------------------------|
| FB-01 | 2753801 | 0.05 U | 0.05 U | 0.11 | 0.018 | 3.0 U | 10 U | 1.0 U |
| W-2G | 2753802 | 0.68 | 0.735 | 0.04 U | 0.024 | 348 | 1970 | 55.6 |
| W-1G | 2753803 | 0.56 | 8.09 | 0.04 U | 0.031 | 453 | 2220 | 40.2 |
| W-4G | 2753804 | 1.56 | 167 | 0.04 U | 0.093 | 26.3 | 2420 | 138 |
| W-9G | 2753805 | 0.33 | 0.05 U | 0.04 U | 0.031 | 311 | 1130 | 4.98 |
| W-10G | 2753806 | 0.12 | 0.05 U | 0.04 U | 0.011 | 155 | 283 | 1.0 U |
| W-9R | 2753807 | 0.19 | 0.11 | 0.04 U | 0.004 | 380 | 489 | 1.0 U |
| W-10R | 2753808 | 0.76 | 0.05 U | 0.04 U | 0.004 | 132 | 184 | 1.0 U |
| W-1R | 2753809 | 0.27 | 18.3 | 0.04 U | 0.304 | 2240 | 27000 | 8260 |
| W-2R | 2753810 | 1.05 | 133 | 0.04 U | 0.488 | 1460 | 16600 | 7570 |
| W-4S | 2753811 | 0.81 | 33.9 | 0.04 U | 0.072 | 750 | 176 | 147 |
| DUP | 2753812 | 0.83 | 32.7 | 0.04 U | 0.072 | 773 | 174 | 150 |
| W-4R | 2753813 | 0.56 | 0.166 | 0.06 | 0.188 | 40.5 | 5490 | 8.98 |
| W-3R | 2753814 | 0.90 | 0.244 | 0.04 U | 0.079 | 40.5 | 3560 | 60.9 |
| W-3G | 2753815 | 1.89 | 280 | 0.04 U | 0.215 | 336 | 3740 | 242 |
| W-3S | 2753818 | 1.24 | 75.7 | 0.04 U | 0.202 | 198 | 5970 | 442 |
| W-5R | 2753819 | 2.05 | 1.62 | 0.04 | 0.127 | 84.2 | 8350 | 38.9 |
| Method | Blank | 0.05 U | 0.05 U | 0.04 U | 0.0035 U | 3.0 U | 10 U | 1.0 U |

500261

QC/QA REPORT

CLIENT : Eacon

Log In Number : 27523

| PARAMETER | Sample Result | Duplicate Sample Result | % RPD | Sample Result for spike | Spike Added | Spike + Sample Result | % Spike Recovered | Sample for QC from same sample? (dup/spike) |
|---------------------------------|---------------|-------------------------|-------|-------------------------|-------------|-----------------------|-------------------|---|
| Biochemical Oxygen Demand, mg/L | 108 | 101 | 6.7 | 108 | 198 | 298 | 96.0 | YES/YES |
| Chloride, mg/L | 1450 | 1440 | 0.7 | 1450 | 100 | 1540 | 90.0 | YES/YES |
| Chemical Oxygen Demand, mg/L | 1660 | 1814 | 11.9 | 1660 | 2500 | 4277 | 104.7 | YES/YES |
| Color, Pt-Co | 2000 | 2000 | n.u | | | | | YES/YES |
| Surfactants, mg/L | 1.89 | 1.88 | 0.5 | 1.89 | 0.60 | 2.53 | 106.7 | YES/YES |
| Ammonia, Nitrogen, mg/L | 279.8 | 279.8 | 0.0 | 279.8 | 200 | 483.2 | 101.7 | YES/YES |
| Nitrate, Nitrogen, mg/L | 0.04 U | 0.04 U | NC | 0.04 U | 0.50 | 0.52 | 104.0 | YES/YES |
| Phenols, mg/L | 0.031 | 0.031 | 0.0 | 0.018 | 0.100 | 0.134 | 116.0 | YES/YES |
| Sulfate, mg/L | 336.2 | 313.2 | 7.1 | 336.2 | 2000 | 2221.3 | 94.0 | YES/YES |
| Total Dissolved Solid, mg/L | 333 | 321 | 3.7 | | | | | NO |
| Total Organic Carbon, mg/L | 241 | 240 | 0.8 | 121 | 100 | 219.3 | 98.0 | YES/YES |

NC : Non-calculable
NA : Non-Available

E : Above method limit
U : Below method reporting limit

500262

GENERAL CHEMISTRY DATA

000067

500263



TOTAL ANALYTICAL SERVICES FOR A SAFE ENVIRONMENT

nytest environmental inc.

box 1518 = 60 seaview blvd., port washington, ny 11050 = (516) 625-5500 = fax (516) 625-1274

500264



TOTAL ANALYTICAL SERVICES FOR A SAFE ENVIRONMENT

nytest environmental inc.

June 27, 1996

Emcon
1433 North Market Blvd., Suite 2
Sacramento, CA 95833

Attn : Susan Hopper A/P Dept.
Ref : Kin-Buc LF 12568001000, OFF71-37-37.37.37
P.O. #: 3700053

Nyttest Environmental, Inc., is pleased to submit our Project Number 9522307 for Login Number 27559, SDG No. OU1B, on your sample(s) received 05/15/96.

We certify that this report is a true report of results obtained from our tests of this material.

Test sample(s) associated with this project will be retained for a period of thirty (30) days, unless otherwise instructed.

My staff is available to answer any questions concerning our report and we look forward to serving your future analytical needs.

Respectfully submitted,

Mike Shmookler, Ph.D.,
Laboratory Operations Manager
Nyttest Environmental, Inc.

Report to: EMCON
Corporate Crossroads Park
1 International Blvd., Suite 700
Mahwah, NJ 07495
Attn: Rich Calagero

Encl:
Shipped Via:

NYS Lab ID#10195
NJ Cert.#73469

Report on sample(s) furnished by client applies to sample(s). Report on sample(s) obtained by us applies to lot sampled. Information contained herein is not to be used for reproduction except by special permission. In the event that there are portions or parts of sample(s) remaining after Nytest has completed the required tests, Nytest shall have the option of returning such sample(s) to the client at the client's expense.

box 1518 ☐ 60 seaview blvd., port washington, ny 11050 ☐ (516) 625-5500
fax (516) 625-1274

500265

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NYTEST ENVIRONMENTAL Inc.

SDG: OUIB

| LABORATORY NUMBER | SAMPLE IDENTIFICATION | TYPE OF SAMPLE |
|----------------------|--------------------------|-------------------|
| 2755901 | W-5S | Water |
| 2755902 | W-5G | Water |
| 2755903 | W-6S | Water |
| 2755904 | W-6G | Water |
| 2755905 | W-6R | Water |
| 2755906 | FB-01 | Water |
| 2755907 | W-8S | Water |
| 2755908 | W-7S | Water |
| 2755909 | W-7SMS | Water |
| 2755910 | W-7SMSD | Water |
| 2755911 | W-8R | Water |
| 2755912 | W-7R | Water |
| 2755913 | DUP | Water |
| 2755914 | W-7G | Water |
| 2755915 | W-8G | Water |

500267



TOTAL ANALYTICAL SERVICES FOR A SAFE ENVIRONMENT

nytest environmental.

(516) 625-5500

FAX: (516) 625-1274

Chain of Custody Record

page #: 1 of 2

Client Name Em WN
 Address 371 Route 17A
Tuxedo, NY 10987
 Project Manager R. Colucci
 Phone 914 361 5102 FAX 914 367 5749
 Project Name WinBac Quarterly
 Project Number 12568-001.000
 P.O. #
 Analytical Protocol SW 846 Deliverables NT Red
 Sampled By R B/BW / SI / GA

Analysis Requested

WinBac Quarterly
 Parameters - no pH
 OU 1 walls

Login #: 27559

Ship to:
 Nytest Environmental Inc.
 60 Seaview Blvd
 Port Washington N.Y. 11050
 Attn.: Sample Control

Date Shipped: _____

Carrier: _____

Air Bill #: _____

Cooler #: _____

C of C #: _____

SDG #: 10113

NEIQT #: _____

No. of Containers

Bin #'s In / Out (For Lab Use Only)

Comments

| Lab ID (Lab Use Only) | Sample ID (Maximum of 6 Characters) | Date Sampled | Time Sampled | Sample Location | No. of Containers | Bin #'s In / Out (For Lab Use Only) | Comments |
|--------------------------|---|-----------------|-----------------|--------------------|-------------------|-------------------------------------|-------------------|
| | W-10G | 5/15/06 | 1700 | #006 | 2 | ✓ | - sat is complete |
| 01 | W-5S | | 930 | 020 | 6 | ✓ | |
| 02 | W-5G | | 945 | 021 | 6 | ✓ | |
| 03 | W-6S | | 950 | 022 | 6 | ✓ | |
| 04 | W-6G | | 1015 | 023 | 6 | ✓ | |
| 05 | W-6D | | 1025 | 024 | 6 | ✓ | |
| 06 | FB-01 | | 1100 | 025 | 6 | ✓ | |
| 07 | W-8S | | 1120 | 026 | 6 | ✓ | |
| 12 | W-7R | | 1220 | 035 | 6 | ✓ | * SDR is closed |
| 13 | DUP | | | 036 | 6 | ✓ | |

Relinquished by: Donald Bierstine Date / Time: 5/15/06 1210Print Name: Donald Bierstine

Relinquished by: _____ Date / Time: _____

Print Name: 000000Relinquished by: J. Toeffel Date / Time: 5/15/06 7:30Print Name: J. ToeffelReceived by: J. Toeffel Date / Time: 5/15/06 1710Print Name: J. Toeffel

Received by: _____ Date / Time: _____

Print Name: _____

Received by Laboratory: Michael Lori Date / Time: 5/15/06 1730Print Name: Michael Lori

Lab Use Only

Custody Seals: Int 3 Broken _____ Absent _____Sample Rec'd in Good Condition?: 3 NSample Temperature: 4 Degrees CelsiusINSPECTED BY: me

COMMENTS: _____

Special Instructions: _____

500268



TOTAL ANALYTICAL SERVICES FOR A SAFE ENVIRONMENT

nytest environmental.

(516) 625-5500

FAX: (516) 625-1274

page #: 2 of 2

Chain of Custody Record

Client Name

EMLON

Address

371 Route 17A

Tuxedo, NY 10987

Project Manager

R. G. Gero

Phone

914 357 5702

FAX

914 357 5799

Project Name

KinBul Quarterly

Project Number

12568-001.000

P.O. #

Analytical Protocol

SWB46

Deliverables

NT Red

Sampled By

P.D. / M. / S. / G. A.

Analysis Requested

Login #:

27557

Ship to:

Nytest Environmental Inc.

60 Seaview Blvd

Port Washington N.Y. 11050

Attn.: Sample Control

Date Shipped:

Carrier:

Air Bill #:

Cooler #:

C of C #:

SDG #:

JULB

NEI QT #:

Comments

No. of Containers

KinBul Quarterly
Parameters - no pH
OK 1 well

Bin #'s In / Out (For Lab Use Only)

| Lab ID (Lab Use Only) | Sample ID (Maximum of 6 Characters) | Date Sampled | Time Sampled | Sample Location |
|--------------------------|---|-----------------|-----------------|--------------------|
| 08 | W-7S | 5/15/16 | 1130 | #027 |
| 09 | W-7SMS | | 1130 | 028 |
| 10 | W7SMSD | | 1130 | 029 |
| 11 | W-8R | | 1210 | 034 |
| 14 | W-7G | | 1300 | 037 |
| 15 | W-8G | | 1450 | 038 |

6 ✓
6 ✓
6 ✓
6 ✓
6 ✓
6 ✓

*SDG is closed

Relinquished by

Ronald Bruner

Date / Time

5/15/16 1710

Received by:

J. Taff

Date / Time

5/15/16 1710

Print Name

Ronald Bruner

Print Name

J. Taff

Relinquished by

000000

Date / Time

Received by:

J. Taff

Date / Time

5/15/16 1710

Print Name

000000

Print Name

J. Taff

Relinquished by

000000

Date / Time

5/15 7:30

Received by Laboratory:

Michael Loni

Date / Time

5/15/16 1930

Print Name

000000

Print Name

Michael Loni

Lab Use Only

Custody Seals: Intact Broken Absent

Sample Rec'd in Good Condition? Y N

Sample Temperature: 4 Degrees Celsius

INSPECTED BY: J. Taff

COMMENTS:

Special Instructions:

500269

INTERNAL CHAIN OF CUSTODY

| | | | |
|---|--|--|------------------|
| Laboratory Person Breaking Field Seal on Sample Shuttle & Accepting Responsibility for Sample | | NAME: <u>M. LANI</u> | TITLE: <u>SC</u> |
| Client: <u>Emcon</u> | Date Broken: <u>5/15/96</u> | Military Time Seal Broken: <u>1645</u> | |
| Login #: <u>27559</u> | Analytical Parameter/Fraction: <u>KINEX Oily</u> | | |

| SAMPLE NO. | ALIQOT/EXTRACT NO. | SAMPLE NO. | ALIQOT/EXTRACT |
|------------|--------------------|------------|----------------|
| 27559-01 | W-55 | 27559-13 | DUP |
| 02 | W-56 | 14 | W-76 |
| 03 | W-61 | 15 | W-86 |
| 04 | W-66 | | |
| 05 | W-6R | | |
| 06 | FB-01 | | |
| 07 | W-85 | | |
| 08, 19, 10 | W 75, MS, MSU | | |
| 11 | W-8R | | |
| 12 | W-7R | | |

| DATE | TIME | RELINQUISHED BY | RECIEVED BY | PURPOSE OF CHANGE |
|---------|------|------------------------------------|------------------------------------|-------------------|
| 5/16/96 | 0800 | PRINTED NAME <u>P. Pierides</u> | PRINTED NAME <u>Wanda Gajewski</u> | |
| | | SIGNATURE <u>[Signature]</u> | SIGNATURE <u>[Signature]</u> | |
| | | PRINTED NAME <u>Wanda Gajewski</u> | PRINTED NAME <u>M. Lan</u> | |
| | | SIGNATURE <u>[Signature]</u> | SIGNATURE <u>[Signature]</u> | |
| 5/17/96 | 0705 | PRINTED NAME <u>P. Pierides</u> | PRINTED NAME <u>C. Cross</u> | metals |
| | | SIGNATURE <u>[Signature]</u> | SIGNATURE <u>C. Cross</u> | |
| 5/17/96 | 0845 | PRINTED NAME <u>P. Pierides</u> | PRINTED NAME <u>Hanguo Wu</u> | NH3 |
| | | SIGNATURE <u>[Signature]</u> | SIGNATURE <u>[Signature]</u> | |
| 5/17 | 1700 | PRINTED NAME <u>Hanguo Wu</u> | PRINTED NAME <u>[Signature]</u> | |
| | | SIGNATURE <u>[Signature]</u> | SIGNATURE <u>[Signature]</u> | |
| 5/20/96 | 1400 | PRINTED NAME <u>C. Cross</u> | PRINTED NAME <u>M. Lan</u> | 5/20/96 |
| | | SIGNATURE <u>[Signature]</u> | SIGNATURE <u>[Signature]</u> | |
| 5/21/96 | 1230 | PRINTED NAME <u>M. Lan</u> | PRINTED NAME <u>Hanguo Wu</u> | 1/13/96 |
| | | SIGNATURE <u>[Signature]</u> | SIGNATURE <u>[Signature]</u> | |
| 5/21/96 | 1630 | PRINTED NAME <u>Hanguo Wu</u> | PRINTED NAME <u>[Signature]</u> | Storage |
| | | SIGNATURE <u>[Signature]</u> | SIGNATURE <u>[Signature]</u> | |

000004

LOGIN

500271

LABORATORY DELIVERABLES

- | | Check if
Complete |
|---|----------------------|
| 1. Cover page, Title page listing Lab Certification# facility name & address, & date of report | ✓ |
| 2. Table of Contents | ✓ |
| 3. Summary sheets listing analytical results for all targeted and non-targeted compounds | NA |
| 4. Summary Table cross-referencing field ID #'s vs. Lab ID #'s | ✓ |
| 5. Document bound, paginated and legible | ✓ |
| 6. Chain of Custody | ✓ |
| 7. Methodology Summary | ✓ |
| 8. Laboratory Chronicle and Holding Time check | ✓ |
| 9. Results submitted on a dry weight basis (if applicable) | NA |
| 10. Method Detection Limits | NA |
| 11. Lab certified by NJDEPE for parameters or appropriate category of parameters or a member of the USEPA CLP | ✓ |
| 12. Non-Conformance Summary | ✓ |

Michael Stumid
Laboratory Manager or Environmental
Consultant's Signature

6/28/96
Date

METAL ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY FORMAT

| | No | Yes |
|---|----|-----|
| 1. Calibration Summary Meet Criteria | — | ✓ |
| 2. ICP Interference Check Sample Results Summary Submitted (if applicable) / Meet Criteria | — | ✓ |
| 3. Serial Dilution Summary Submitted (if applicable) / Meet Criteria | — | ✓ |
| 4. Laboratory Control Sample Summary Submitted (if applicable) / Meet Criteria | — | ✓ |
| 5. Blank Contamination - If yes, list compounds concentrations in each blank: | ✓ | — |
| <hr/> | | |
| 6. Matrix Spike/Matrix Spike Duplicate Recoveries Meet Criteria (If not met, list those compounds and their recoveries which fall outside the acceptable range) | — | ✓ |
| <hr/> | | |
| 7. Extraction Holding Time Met | — | ✓ |
| If not met, list number of days exceeded for each sample: <hr/> | | |
| <hr/> | | |
| 8. Analysis Holding Time Met | — | ✓ |
| If not met, list number of days exceeded for each sample: <hr/> | | |
| <hr/> | | |
| Additional Comments: <hr/> | | |
| <hr/> | | |
| <hr/> | | |

Laboratory Manager: Michael Smith

Date: 6/21/96

500273

Laboratory Chronicle

Client Name: Emcon
Date Received: 05/10/96
Sample ID: As per chain of custody

Log In No.: 27559

Inorganics:

Digested: 05/17/96

1. Metals _____
Analyzed: 05/20/96, 05/21/96, 06/23/96
2. Metals _____
06/06/96
3. Phenol _____

Other Analysis:

Ammonia Nitrogen: 05/17/96

BOD: 05/16/96

Chloride: 06/11/96

COO: 05/20/96

Color: 05/17/96

Sulfate: 05/30/96, 05/31/96

TDS: 05/22/96, 05/24/96

TOC: 06/10/96

Surfactants: 05/30/96

Nitrate: 05/21/96

Section Supervisor

Review & Approval

Michael Thumshler

Quality Control Supervisor

Review & Approval

Michael Thumshler

Dates are included for re-extractions and reanalysis.

500274

CASE NARRATIVE
METALS

Login No: 27559

SDG No: OU1B

HOLDING TIMES

All samples associated with this SDG/LOGIN were prepared and analyzed within the specified holding time.

CALIBRATIONS

All ICV and CCV standards meet QC criteria.

The percent recovery of all components in the CRDL standard recovered within NEI control limits of $\pm 50\%$
Note that CLP SOW ILM03.0 does not specify control limits for the CRDL standard.

BLANKS

All preparation blanks and calibration blanks associated with these analyses meet QC criteria.

MATRIX SPIKES

Sample W-7S was utilized as the matrix spike sample for these analyses.

All matrix spike recoveries met the 75-125% recovery criteria.

DUPLICATES

Sample W-7S was utilized as the duplicate sample for these analyses.

All Relative Percent Differences (RPDs) met QC criteria.

Note that all RPDs of 200% are due to one analyte being reported above the Instrument Detection Limit (IDL) and one result below the IDL.

LABORATORY CONTROL SAMPLE (LCS)

The percent recovery of all components in the LCS met QC criteria.

SERIAL DILUTION

A serial dilution was performed on sample W-7S. All percent differences (%D) were within the $\pm 10\%$ acceptance limits.

500275

SAMPLES

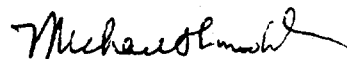
All samples were analyzed in accordance with the requirements of the methods described in SW-846 Method 6010A.

No further analytical problems were encountered.

SPECIAL PROJECT NOTES

None.

I certify that this data package has been reviewed for the quality control and quality assurance measures for all analyzed methodologies.



Michael Shmookler, Ph.D.
Laboratory Operations Manager

500277

METHODOLOGY SUMMARY

AQUEOUS METHODOLOGIES:

| | REF 1 | REF 2 | REF 3 | REF 5 |
|---|-------|------------------------------|---------|-------|
| BNA, Pesticides/PCB's Extraction | | 3510/3520 | | |
| AA/ICP Sample Preparation | 200.7 | | | |
| Furnace Sample Preparation | 200.0 | | | |
| Mercury Sample Preparation | 245.1 | | | |
| Hexavalent Chromium Sample Preparation | 218.5 | | | |
| Clean-Up | | 3610/3620/3630/ 3640/3660 | | |
| Organochlorine Pesticide and PCB's by Gas Chromatography | | | 608 | 505 |
| Herbicides by Gas Chromatography | | | 362 | 515.1 |
| Purgeable Organics by GC/MS | | | 624 | 524.2 |
| Base/Neutral, Acids by GC/MS | | | 625 | 525 |
| 2,3,7,8-TCDD by GC/MS | | | 613/625 | |
| BTEX | | | 602 | 502.2 |
| KDB/DBCP by Microextraction | | | | 504.1 |

NON-AQUEOUS METHODOLOGIES:

| | |
|----------------------------------|------------------------------|
| BNA, Pesticides/PCB's Extraction | 3550 |
| AA/ICP Sample Preparation | 3050 |
| Furnace Sample Preparation | 3020/3030/3050 |
| Mercury Sample Preparation | 7471 |
| Clean-Up | 3610/3620/3630/ 3640/3660 |

GC, Gas Chromatography/Mass Spectrometry:

| | |
|---|-----------|
| Purgeable Organics | 8240/8021 |
| Base/Neutral and Acid Extractables | 8270 |
| Organophosphorus Pesticides | 8140 |
| Organochlorine Pesticide and PCB's by Gas Chromatography | 8080 |
| BTEX | 8020 |
| Halogenated Purgeable Organics | 8010 |

FURNACE AA:

ICAP:

500279

METHODOLOGY SUMMARY

| ADDITIONAL INORGANIC PARAMETERS: | REFERENCE 1 | REFERENCE 2 |
|---|-------------|----------------|
| Biochemical Oxygen Demand | 405.1 | |
| Bromide | 320.1 | |
| Color | 110.2 | |
| Conductance | 120.1 | |
| Conductance | | 9050 |
| Odor | 140.1 | |
| pH | 150.1 | |
| pH | | 9045/9040/9041 |
| TDS | 160.1 | |
| TSS | 160.2 | |
| TS | 160.3 | |
| Hardness | 130.1 | |
| Temperature | 170.1 | |
| Turbidity | 180.1 | |
| Acidity | 305.1 | |
| Alkalinity | 310.1 | |
| Ammonia | 350.2/350.3 | |
| Chloride | 325.3 | |
| Chloride | | 9252 |
| Residual Chlorine | 330.2 | |
| COD | 410.3/410.4 | |
| Cyanide (Total & Amenable) | 335.3/335.1 | 9010/9012 |
| Oil & Grease | 413.1/413.2 | |
| Oil & Grease | | 9070/9071 |
| Fluoride | 340.2 | |
| TKN | 351.2 | |
| NO2/NO3 | 353.2 | 9200 |
| D.O | 360.2 | |
| Petroleum Hydrocarbons (Reference 4) | 418.1 | 9066 |
| Phenol | 420.2 | |
| Phosphorus | 365.1 | |
| Settleable Solids | 160.5 | |
| Silica | 370.1 | |
| Sulfate | 375.2/375.4 | 9038 |
| Sulfide | 376.1 | 9030 |
| Surfactants | 425.1 | |
| TOC | 415.1 | 9060 |
| TOX | | 9020 |
| MISCELLANEOUS ANALYSIS: | | |
| Extraction Procedure Toxicity | | 1310 |
| Ignitability | | 1010 |
| Corrosivity | | 1110 |
| Reactivity | | Chapter 8.3 |
| Paint Filter Liquid Test | | 9095 |
| Toxicity Characteristic Leaching Procedure (TCLP) | | (REF 4) |
| Cation Exchange Capacity of Soils | | 9080 |

000014

METHODOLOGY SUMMARY

REFERENCE 6

| | |
|------------------------------|------|
| Total Coliform | 909A |
| Fecal Coliform | 9096 |
| Fecal Streptococcus Coliform | 910B |
| Standard Plate Count | 907 |
| Hexavalent Chromium | 312B |
| Carbonaceous BOD | 507 |

500281

METHODOLOGY SUMMARY

REFERENCES:

- (1) USEPA-600/4-79-020, Methods for Chemical Analysis of Water and Wastewater
- (2) USEPA SW 846, Test Methods for Evaluating Solid Waste, Third Edition
- (3) Federal Register 40 CFR Part 136, Vol.49, No.209 Test Parameters for the Analysis of Pollutants
- (4) Federal Register Vol.51, No.216 Friday, 11/7/86, pp.40643-40652
- (5) Method for the Determination of Organic Compounds in Drinking Water, EPA 500/4-88/039, Dec. 1988
- (6) Standard Method for Examination of Water and Wastewater, 15 Edition 1980

nytest environmental_{nc}

Method Qualifiers for Inorganics

FORM I-IN includes fields for three types of results qualifiers. These qualifiers must be completed as follows:

- * C (Concentration) qualifier -- Enter "B" if the reported value was obtained from a reading that was less than the Contract Required Detection Limit (CRDL) but greater than or equal to the Instrument Detection Limit (IDL). If the analyte was analyzed for but not detected, a "U" must be entered.
- * Q qualifier -- Specified entries and their meanings are as follows:
 - E - The reported value is estimated because of the presence of interference.
 - N - Duplicate precision not met (CV > 20%).
 - N - Spiked sample recovery not within control limits.
 - S - The reported value was determined by Method of Standard Addition (MSA).
 - W - Post-digestion spike for Furnace AA analysis is out of control limits (85 - 115%), while sample absorbance is less than 50% of spike absorbance.
 - * - Duplicate analysis not within control limits.
 - + - Correlation Coefficient for the MSA is less than 0.995.Entering "S", "W" or "+" is mutually exclusive.
- * M (Method) qualifier - enter:
 - "P" for ICP
 - "A" for Flame AA
 - "F" for Furnace AA
 - "CV" for Cold Vapor AA
 - "AV" for Automated Cold Vapor AA
 - "AS" for Semi-Automated Spectrophotometric
 - "C" for Manual Spectrophotometric
 - "T" for Titrimetric
 - "NR" if the analyte is not required to be analyzed.

METALS DATA

000018

500284

SAMPLE NO.

W-5G

QC Report No. OU1B__

Lab Sample ID: 755902

Date Received: 05/15/96

Percent Solids : 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

[illegible]

CODES :

P: ICP; F : GFAA; CV: Cold Vapor; AS: Automated Spectrophotometric

Note: A "U" in the "C" (Concentration) column indicates the analyte was not detected in this sample; "B" = Sample value greater than Instrument Detection Limit, but less than reporting limit; "NR" = Not Required.

Comments:

W-5G

INORGANICS ANALYSIS DATA SHEET

ab Name: NYTEST ENV INC

Contract: 9622307

W-6S

Tab Code: NYTEST

Login No.: 27559

QC Report No. OU1B

Matrix (soil/water): WATER

Lab Sample ID: 755903

Level (low/high) : LOW

Date Received: 05/15/96

Percent Solids : 0.0

[illegible]

P: ICP; F : GFAA; CV: Cold Vapor; AS: Automated Spectrophotometric
Note: A "U" in the "C" (Concentration) column indicates the analyte was
not detected in this sample; "B" = Sample value greater than Instrument
Detection Limit, but less than reporting limit; "NR" = Not Required.

W-6S SODIUM AT A 10X DILUTION

INORGANICS ANALYSIS DATA SHEET

W-6G

SAMPLE NO.

W-6R

Percent Solids : 0.0

SAMPLE NO.

FB-01

Percent Solids : 0.0

FB-01

INORGANICS ANALYSIS DATA SHEET

W-8S

Lab Sample ID: 755907
Date Received: 05/15/96

Concentration Units (ug/L or mg/kg dry weight): UG/L

[illegible]

CODES :

P: ICP; F : GFAA; CV: Cold Vapor; AS: Automated Spectrophotometric
Note: A "U" in the "C" (Concentration) column indicates the analyte was
not detected in this sample; "B" = Sample value greater than Instrument
Detection Limit, but less than reporting limit; "NR" = Not Required.

Comments:

W-8S SODIUM AT A 25X DILUTION

1

INORGANIC ANALYSES DATA SHEET

W-7S

Concentration Units (ug/L or mg/kg dry weight): UG/L

[illegible]

W-7S SODIUM AT A 25X DILUTION

SAMPLE NO.

W-8R

Contract: 9622307

QC Report No. OU1B

Lab Sample ID: 755911

Date Received: 05/15/96

Percent Solids : 0.0 .

[illegible]

P: ICP; F : GFAA; CV: Cold Vapor; AS: Automated Spectrophotometric
Note: A "U" in the "C" (Concentration) column indicates the analyte was
not detected in this sample; "B" = Sample value greater than Instrument
Detection Limit, but less than reporting limit; "NR" = Not Required.

W-8R SODIUM AT A 25X DILUTION

SAMPLE NO.

W-7R

Percent Solids : 0.0

INORGANICS ANALYSIS DATA SHEET

ab Name: NYTEST ENV INC

Contract: 9622307

DUP

Tab Code: NYTEST

Login No. : 27559

QC Report No. OU1B

matrix (soil/water): WATER

Lab Sample ID: 755913

Level (low/high) : LOW

Date Received: 05/15/96

Percent Solids : 0.0

[illegible]

P: ICP; F : GFAA; CV: Cold Vapor; AS: Automated Spectrophotometric
Note: A "U" in the "C" (Concentration) column indicates the analyte was
not detected in this sample; "B" = Sample value greater than Instrument
Detection Limit, but less than reporting limit; "NR" = Not Required.

DUP SODIUM AT A 25X DILUTION

SAMPLE NO.

W-7G

Percent Solids : 0.0

SAMPLE NO.

W-8G

Lab Sample ID: 755915
Date Received: 05/15/96

[illegible]

P: ICP; F : GFAA; CV: Cold Vapor; AS: Automated Spectrophotometric
Note: A "U" in the "C" (Concentration) column indicates the analyte was
not detected in this sample; "B" = Sample value greater than Instrument
Detection Limit, but less than reporting limit; "NR" = Not Required.

W-8G

NYTEST ENVIRONMENTAL INC.

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Tab Name: NYTEST ENV INC

Contract: 9622307

Lab Code: NYTEST

Login No.: 27559

QC Report No.: OU1B

Initial Calibration Source: SPEXContinuing Calibration Source: SPEX

Concentration Units: ug/L

[illegible]

NR : Analyte Not Required

NYTEST ENVIRONMENTAL INC.

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: NYTEST ENV INC

Contract: 9622307

Lab Code: NYTEST

Login No.: 27559_

QC Report No.: OU1B

Initial Calibration Source: SPEX

Continuing Calibration Source: SPEX_____

Concentration Units: ug/L

[illegible]

NR : Analyte Not Required

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Continuing Calibration Source: SPEX

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Continuing Calibration Source: SPEX

CRDL STANDARD FOR AA AND ICP

ANALYTICAL AND METHOD BLANK SUMMARY

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L_

[illegible]

NR = Analyte Not Requested

NEI FORM 4 - (9/93)

500303

ANALYTICAL AND METHOD BLANK SUMMARY

Preparation Blank Concentration Units (ug/L or mg/kg): _____

500304

ANALYTICAL AND METHOD BLANK SUMMARY

Preparation Blank Concentration Units (ug/L or mg/kg): _____

500305

ICP INTERFERENCE CHECK SAMPLE

ICS Source: EPA

[illegible]

ICP INTERFERENCE CHECK SAMPLE

ICP ID Number: 61 ICS Source: EPA

[illegible]

ICP INTERFERENCE CHECK SAMPLE

ICS Source: EPA

NYTEST ENVIRONMENTAL INC.

SAMPLE NO.

MATRIX SPIKE RECOVERY DATA SHEET

W-7SMSD

ab Name: NYTEST ENV INC

Contract: 9622307

Tab Code: NYTEST

Login No.: 27559

QC Report No. : OU1B

Matrix (soil/water): WATER

Level (low/med): LOW

Solids for Sample: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

[illegible]

Comments:

W-7SMSD

NR : Analyte Not Required

NYTEST ENVIRONMENTAL INC.

SAMPLE NO.

DUPLICATES

ab Name: NYTEST ENV INC

Contract: 9622307

W-7SMS

Tab Code: NYTEST Login No.: 27559

QC Report No. : OU1B__

Matrix (soil/water): WATER

Level (low/med): LOW

Solids for Sample: 0.0

% Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

[illegible]

NR : Analyte Not Requested

LABORATORY CONTROL SAMPLE

Aqueous LCS Source: SPEX

500311

ICP SERIAL DILUTION

W-7SL

Level (low/med): LOW__

Instrument Detection Limits (Quarterly)

Furnace AA ID Number : _____

omments:

NYTEST ENVIRONMENTAL INC.

Instrument Detection Limits (Quarterly)

Lab Name: NYTEST_ENV_INC Contract: 9622307

Lab Code: NYTEST Login No.: 27559 SDG No.: OU1B

CP ID Number: 61 Date: 04/16/96

Flame AA ID Number : _____

Furnace AA ID Number : _____

[illegible]

Comments:

GENERAL CHEMISTRY DATA

000049

REPORT OF ANALYSIS

Log In No.: 27559

We find as follows:

| CLIENT ID | LAB ID | Biochemical Oxygen Demand mg/L | Chloride mg/L | Chemical Oxygen Demand mg/L | Color Pt - Co | Surfactants mg/L | Ammonia Nitrogen mg/L |
|--------------|---------|--------------------------------|---------------|-----------------------------|---------------|------------------|-----------------------|
| W-5S | 2755901 | 30.6 | 3420 | 303 | 60 | 0.85 | 22.6 |
| W-5G | 2755902 | 25.3 | 207 | 267 | 300 | 1.16 | 106 |
| W-6S | 2755903 | 19.5 | 3570 | 297 | 400 | 0.53 | 10.2 |
| W-6G | 2755904 | 5.3 | 36.8 | 97.8 | 300 | 0.88 | 65.1 |
| W-6R | 2755905 | 11.3 | 3260 | 331 | 200 | 2.50 | 0.308 |
| FB-01 | 2755906 | 3.0 U | 1.0 U | 3.0 U | 40 | 0.05 U | 0.05 U |
| W-8S | 2755907 | 3.0 U | 4090 | 376 | 200 | 0.43 | 5.19 |
| W-7S | 2755908 | 8.3 | 3230 | 355 | 200 | 0.88 | 29.1 |
| W-8R | 2755911 | 7.5 | 4570 | 299 | 300 | 0.72 | 6.01 |
| W-7R | 2755912 | 7.3 | 4700 | 324 | 200 | 0.23 | 6.76 |
| DUP | 2755913 | 7.3 | 4310 | 333 | 300 | 0.38 | 6.63 |
| W-7G | 2755914 | 84.7 | 1080 | 1340 | 400 | 1.23 | 297 |
| W-8G | 2755915 | 38.0 | 654 | 871 | 1500 | 1.93 | 199 |
| Method Blank | | 3.0 U | 1.0 U | 3.0 U | 10 U | 0.05 U | 0.05 U |

| CLIENT ID | LAB ID | Nitrate mg/L | Phenol mg/L | Sulfate mg/L | Total Dissolved Solids mg/L | Total Organic Carbon mg/L |
|--------------|---------|--------------|-------------|--------------|-----------------------------|---------------------------|
| W-5S | 2755901 | 0.06 | 0.104 | 65.8 | 7830 | 31.4 |
| W-5G | 2755902 | 0.04 U | 0.003 | 159 | 1160 | 64.0 |
| W-6S | 2755903 | 0.06 | 0.035 | 22.1 | 6890 | 49.2 |
| W-6G | 2755904 | 0.04 U | 0.0035 U | 113 | 305 | 21.5 |
| W-6R | 2755905 | 0.04 U | 0.0035 U | 307 | 9580 | 27.4 |
| FB-01 | 2755906 | 0.20 | 0.0035 U | 3.0 U | 430 | 1.0 U |
| W-8S | 2755907 | 0.06 | 0.0035 U | 237 | 8990 | 26.1 |
| W-7S | 2755908 | 0.06 | 0.0035 U | 159 | 949 | 41.0 |
| W-8R | 2755911 | 0.06 | 0.0035 U | 384 | 9550 | 26.4 |
| W-7R | 2755912 | 0.13 | 0.0035 U | 490 | 10300 | 21.7 |
| DUP | 2755913 | 0.11 | 0.0035 U | 472 | 9670 | 21.9 |
| W-7G | 2755914 | 0.04 U | 0.279 | 366 | 3800 | 252 |
| W-8G | 2755915 | 0.04 U | 0.325 | 56.6 | 1890 | 204 |
| Method Blank | | 0.04 U | 0.0035 U | 3.0 U | 10 U | 1.0 U |

****Please Note:** The fecal Coliform, Fecal Strep and Total Coliform tests could not be performed, because no sample was received for these tests.

500316

QC/QA REPORT

CLIENT : Emcon

Log In Number : 27559

| PARAMETER | Sample Result | Duplicate Sample Result | % RPD | Sample Result for spike | Spike Added | Spike + Sample Result | % Spike Recovered | Sample for QC from same sample? (dup/spike) |
|---------------------------------|---------------|-------------------------|-------|-------------------------|-------------|-----------------------|-------------------|---|
| Biochemical Oxygen Demand, mg/L | 8.3 | 23.7 | 96.3 | 8.3 | 199 | 200 | 96.9 | YES/YES |
| Chloride, mg/L | 3230 | 3220 | 0.3 | 3230 | 400 | 3620 | 97.5 | YES/YES |
| Chemical Oxygen Demand, mg/L | 355.4 | 359.9 | 1.3 | 355.48 | 250 | 622.1 | 106.6 | YES/YES |
| Color, Pt-Co | 1500 | 1500 | 0.0 | | | | | YES |
| Surfactants, mg/L | 0.88 | 0.89 | 1.1 | 0.88 | 0.60 | 1.54 | 110.0 | YES/YES |
| Ammonia, Nitrogen, mg/L | 29.13 | 29.42 | 1.0 | 29.13 | 10.0 | 38.5 | 93.7 | YES/YES |
| Nitrate, Nitrogen, mg/L | 0.04 U | 0.04 U | NC | 0.04 U | 2.50 | 2.40 | 96.0 | YES/YES |
| Phenols, mg/L | 0.003 U | 0.0034 | NC | 0.003 U | 0.100 | 0.084 | 84.0 | NO/NO |
| Sulfate, mg/L | 159.2 | 163.8 | 2.8 | 159.2 | 400 | 527 | 92.0 | YES/YES |
| Total Dissolved Solid, mg/L | 146 | 156 | 6.6 | 146 | 20 | 166 | 100.0 | NO/NO |
| Total Organic Carbon, mg/L | 41.0 | 40.9 | 0.2 | 41.0 | 100.0 | 127.1 | 86.1 | YES/YES |

NC : Non-calculable
NA : Non-Available

E : Above method limit
U : Below method reporting limit

500317



TOTAL ANALYTICAL SERVICES FOR A SAFE ENVIRONMENT

nytest environmental inc.

box 1518 = 60 seaview blvd., port washington, ny 11050 = (516) 625-5500 = fax (516) 625-1274

500318



TOTAL ANALYTICAL SERVICES FOR A SAFE ENVIRONMENT

nytest environmental inc.

June 27, 1996

Emcon
1433 North Market Blvd., Suite 2
Sacramento, CA 95833

Attn : Susan Hopper A/P Dept.
Ref : Kin-Buc LF 12568001000, OFF71-37-37.37.37
P.O. #: 3700053

Nytest Environmental, Inc., is pleased to submit our Project Number 9522307 for Login Number 27560, 27579, SDG No. OU2, on your sample(s) received 05/15/96.

We certify that this report is a true report of results obtained from our tests of this material.

Test sample(s) associated with this project will be retained for a period of thirty (30) days, unless otherwise instructed.

My staff is available to answer any questions concerning our report and we look forward to serving your future analytical needs.

Respectfully submitted,

Mike Shmookler, Ph.D.,
Laboratory Operations Manager
Nytest Environmental, Inc.

Report to: EMCON
Corporate Crossroads Park
1 International Blvd., Suite 700
Mahwah, NJ 07495
Attn: Rich Calagero

Encl:

Shipped Via:

NYS Lab ID#10195

NJ Cert.#73469

Report on sample(s) furnished by client applies to sample(s). Report on sample(s) obtained by us applies to lot sampled. Information contained herein is not to be used for reproduction except by special permission. In the event that there are portions or parts of sample(s) remaining after Nytest has completed the required tests, Nytest shall have the option of returning such sample(s) to the client at the client's expense.

box 1518 ☐ 60 seaview blvd., port washington, ny 11050 ☐ (516) 625-5500
fax (516) 625-1274

500319

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NYTEST ENVIRONMENTAL Inc.

SDG: OU2

LABORATORY
NUMBER

SAMPLE
IDENTIFICATION

TYPE OF
SAMPLE

| | | |
|---------|--------|-------|
| 2756001 | RR-01 | Water |
| 2756002 | RR-02 | Water |
| 2756003 | RR-03 | Water |
| 2756004 | RR-04 | Water |
| 2756005 | WE-10S | Water |
| 2756006 | WE-10R | Water |
| 2756007 | GEI10G | Water |

500321

NYTEST ENVIRONMENTAL Inc.

SDG: OU2

| LABORATORY NUMBER | SAMPLE IDENTIFICATION | TYPE OF SAMPLE |
|----------------------|--------------------------|-------------------|
| 2757901 | WE-3S | Water |
| 2757902 | GEI-3G | Water |
| 2757903 | WE-3R | Water |
| 2757904 | WE-7R | Water |
| 2757905 | WE-7S | Water |
| 2757906 | WE-6R | Water |
| 2757907 | GEI-6G | Water |
| 2757908 | GEI-6S | Water |
| 2757909 | WE-5S | Water |
| 2757910 | DUP | Water |
| 2757911 | WE-5R | Water |
| 2757912 | GEI-5G | Water |
| 2757913 | GEI-5GMS | Water |
| 2757914 | GEI-5GMSD | Water |
| 2757915 | WE-114D | Water |
| 2757916 | FB-03 | Water |

500322



TOTAL ANALYTICAL SERVICES FOR A SAFE ENVIRONMENT

nytest environmental.

(516) 625-5500

FAX: (516) 625-1274

page #: 1 of 1

Chain of Custody Record

Client Name EMCON
 Address 371 Route 17A
Tuxedo, NY 10987
 Project Manager R. Gloger
 Phone 914 357 5102 FAX 914 357 5789
 Project Name Kim Bue Quarterly
 Project Number 12568-001-000
 P.O. #
 Analytical Protocol SW 846 Deliverables NT R-d
 Sampled By R B Lom / ST / GA

Analysis Requested

Login #: 275-0

Ship to:
 Nytest Environmental Inc.
 60 Seaview Blvd
 Port Washington N.Y. 11050
 Attn: Sample Control

Date Shipped: _____

Carrier: _____

Air Bill #: _____

Cooler #: _____

C of C #: _____

SDG #: OU2

NEI QT #: _____

Comments

| Lab ID (Lab Use Only) | Sample ID (Maximum of 6 Characters) | Date Sampled | Time Sampled | Sample Location |
|--------------------------|---|-----------------|-----------------|--------------------|
| 05 | WE-10S | 5/15/96 | 1600 | #039 |
| 06 | WE-10R | ↓ | 1615 | 040 |
| 07 | GEI-10G | ↓ | 1630 | 041 |
| 01 | RR-01 | 5/15/96 | 1130 | #030 |
| 02 | RR-02 | ↓ | 1142 | 031 |
| 03 | RR-03 | ↓ | 1213 | 032 |
| 04 | RR-04 | ↓ | 1220 | 033 |

No. of Containers

Kim Bue Quarterly

Parameters - no pH

OU2 wells / surface water

Bin #'s In / Out (For Lab Use Only)

* Keep SDTs open for
 above OU2 wells

Relinquished by Richard BuerkePrint Name Richard Buerke

Relinquished by

Print Name

Relinquished by

Print Name

Date / Time

5/15/96 1710

Date / Time

Date / Time

Date / Time

Date / Time

Received by

Print Name

Received by

Print Name

Received by Laboratory

Print Name

Date / Time

5/15/96 1710

Date / Time

Date / Time

Date / Time

Date / Time

Lab Use Only

Custody Seals: Intact Broken AbsentSample Rec'd in Good Condition? Y NSample Temperature: 4 Degrees CelsiusINSPECTED BY: ML

COMMENTS:

Special Instructions: _____

500323



TOTAL ANALYTICAL SERVICES FOR A SAFE ENVIRONMENT

nytest environmental.

(516) 625-5500

FAX: (516) 625-1274

Chain of Custody Record

page #: 1 of 2

Client Name EMCON
 Address 371 Route 17A
Tuxedo, NY 10987
 Project Manager R. Gloger
 Phone 914 357 5702 FAX 914 357 5799
 Project Name Kim Bae Quarterly
 Project Number 12568-001-000
 P.O. # _____
 Analytical Protocol SW 846 Deliverables NTRed
 Sampled By R. B. / B. W. / S. E. / G. A.

Analysis Requested

Login #: 37577

Ship to:
 Nytest Environmental Inc.
 60 Seaview Blvd
 Port Washington N.Y. 11050
 Attn: Sample Control

Date Shipped: _____

Carrier: _____

Air Bill #: _____

Cooler #: _____

C of C #: _____

SDG #: 002

NEI QT #: _____

Comments

| Lab ID (Lab Use Only) | Sample ID (Maximum of 6 Characters) | Date Sampled | Time Sampled | Sample Location |
|--------------------------|---|-----------------|-----------------|--------------------|
| 01 | WE-3S | 5/16/02 | 1010 | # 042 |
| 02 | GEI-3G | | 1020 | 043 |
| 03 | WE-3R | | 1035 | 099 |
| 04 | WE-7R | | 1135 | 044 |
| 05 | WE-7S | | 1145 | 045 |
| 06 | WE-6R | | 1215 | 046 |
| 08 | GEI-6G | | 1245 | 048 |
| 09 | WE-5S | | 1300 | 049 |
| 10 | DUP | | | 050 |
| 11 | WE-5R | | 1320 | 051 |

No. of Containers

Bin #'s In / Out (For Lab Use Only)

Relinquished by Ronald Bierstine Date / Time 5/16/02 1500
 Print Name Ronald Bierstine
 Relinquished by Caesar A. Petrie Date / Time 5/16/02 1600
 Print Name Caesar A. Petrie
 Relinquished by _____ Date / Time _____
 Print Name _____

Received by Caesar A. Petrie Date / Time _____
 Print Name Caesar A. Petrie
 Received by _____ Date / Time _____
 Print Name _____
 Received by Laboratory Michael Lani Date / Time 5/16/02 1800
 Print Name Michael Lani

Lab Use Only

Custody Seals: Intact Broken AbsentSample Rec'd in Good Condition? Y NSample Temperature: 4 Degrees CelsiusINSPECTED BY: me

COMMENTS:

ions:

500324



TOTAL ANALYTICAL SERVICES FOR A SAFE ENVIRONMENT

nytest environmental.

(516) 625-5500

FAX: (516) 625-1274

Chain of Custody Record

page #: 2 of 2

Client Name EW 40N
 Address 371 Route 17A
Tuxedo, NY 10987
 Project Manager R. Golegors
 Phone 914 357 5702 FAX 914 357 5799
 Project Name KimBac Quarterly
 Project Number 12588-001.600
 P.O. # _____
 Analytical Protocol SL 846 Deliverables NS Red
 Sampled By 12/12 BM/SE/GIA

Analysis Requested

Login #: 21577
 Ship to:
 Nytest Environmental Inc.
 60 Seaview Blvd
 Port Washington N.Y. 11050
 Attn.: Sample Control

Date Shipped: _____

Carrier: _____

Air Bill #: _____

Cooler #: _____

C of C #: _____

SDG #: aw

NEI QT #: _____

Comments

No. of Containers

KimBac Quarterly
Parameters - w pH
042 wells

Bin #'s In / Out (For Lab Use Only)

| Lab ID (Lab Use Only) | Sample ID (Maximum of 6 Characters) | Date Sampled | Time Sampled | Sample Location |
|--------------------------|---|-----------------|-----------------|--------------------|
| 12 | G E I - 56 | 7/16/86 | 1330 | #052 |
| 13 | G E I 56ms | ↓ | 1330 | 053 |
| 14 | G E I 56msD | ↓ | 1330 | 054 |
| 07 | G E I - 66 | ↓ | 1220 | 047 |
| 15 | W E - 114D | ↓ | 1435 | 097 |
| 16 | F D - 03 | ↓ | 1435 | 098 |

*5067 is closed

Relinquished by Ronald Biersting Date / Time 5/16/86 1500
 Print Name Ronald Biersting
 Relinquished by Caesar Petrie Date / Time 5/16 600
 Print Name Caesar Petrie
 Relinquished by _____ Date / Time _____
 Print Name _____

Received by R. Golegors Date / Time _____
 Print Name Caesar Petrie
 Received by _____ Date / Time _____
 Print Name _____
 Received by Laboratory mt Date / Time 5/16/86 1800
 Print Name Michael Lani

Lab Use Only

Custody Seals: Intact Broken AbsentSample Rec'd in Good Condition? Y NSample Temperature: 4 Degrees CelsiusINSPECTED BY: me

COMMENTS: _____

Special Instructions: _____

500325

NYTEST ENVIRONMENTAL INC.

INTERNAL CHAIN OF CUSTODY

| | | | |
|---|---|--|------------------|
| Laboratory Person Breaking Field Seal on Sample Shuttle & Accepting Responsibility for Sample | | NAME: <u>M LANI</u> | TITLE: <u>SC</u> |
| Client: <u>Emcon</u> | Date Broken: <u>5/15/96</u> | Military Time Seal Broken: <u>1645</u> | |
| Login #: <u>27560</u> | Analytical Parameter/Fraction: <u>FWBC Q41X</u> | | |

| SAMPLE NO. | ALIQUT/EXTRACT NO. | SAMPLE NO. | ALIQUT/EXTRACT NO. |
|------------|--------------------|------------|--------------------|
| 27560-01 | RR-01 | | |
| - 02 | RR-02 | | |
| - 03 | RR-03 | | |
| - 04 | RR-04 | | |
| - 05 | WE-105 | | |
| - 06 | WE-10R | | |
| ✓ - 07 | WE-10L | | |
| | | | |
| | | | |
| | | | |
| | | | |

| DATE | TIME | RELINQUISHED BY | RECIEVED BY | PURPOSE OF CHANGL |
|---------|-------|---|---|-------------------|
| 5/16/96 | 0800 | PRINTED NAME <u>P. PIERIDES</u> SIGNATURE <u>[Signature]</u> | PRINTED NAME <u>WALDEMAR GATENSKA</u> SIGNATURE <u>[Signature]</u> | Blank |
| 5/16/96 | 1500 | PRINTED NAME <u>WALDEMAR GATENSKA</u> SIGNATURE <u>[Signature]</u> | PRINTED NAME <u>M. LANI</u> SIGNATURE <u>[Signature]</u> | Blank |
| 5/16/96 | 19:00 | PRINTED NAME <u>P. PIERIDES</u> SIGNATURE <u>[Signature]</u> | PRINTED NAME <u>W. LANI</u> SIGNATURE <u>[Signature]</u> | Color |
| 5/17/96 | 0745 | PRINTED NAME <u>P. PIERIDES</u> SIGNATURE <u>[Signature]</u> | PRINTED NAME <u>C. Voss</u> SIGNATURE <u>C. Voss</u> | metals |
| 5/17/96 | 0900 | PRINTED NAME <u>P. PIERIDES</u> SIGNATURE <u>[Signature]</u> | PRINTED NAME <u>Hangnorn</u> SIGNATURE <u>[Signature]</u> | NH3 |
| 5/17/96 | 1700 | PRINTED NAME <u>Hangnorn</u> SIGNATURE <u>[Signature]</u> | PRINTED NAME <u>M. LANI</u> SIGNATURE <u>[Signature]</u> | Blank |
| 5/17/96 | 1800 | PRINTED NAME <u>M. Desany</u> SIGNATURE <u>[Signature]</u> | PRINTED NAME <u>P. PIERIDES</u> SIGNATURE <u>[Signature]</u> | Blank |
| 5/17/96 | 1800 | PRINTED NAME <u>M. LANI</u> SIGNATURE <u>[Signature]</u> | PRINTED NAME <u>P. PIERIDES</u> SIGNATURE <u>[Signature]</u> | 000006 |

500326

NEI INTERNAL CHAIN OF CUSTODY RECORD

LOGIN _____

| DATE | TIME | RELINQUISHED BY: | | RECEIVED BY: | | REASON FOR CHANGE COMMENTS |
|---------|-------|------------------|-----------|--------------|----------|-------------------------------|
| 5/21/96 | 1630 | PRINT | Hanguo Wu | PRINT | M. LANI | Storage |
| | | SIGNATURE | H Wu | SIGNATURE | am. La | |
| 5/22/96 | 1000 | PRINT | M. LANI | PRINT | M. Deane | TOS |
| | | SIGNATURE | am. La | SIGNATURE | M. Deane | |
| 5/22/96 | 17:45 | PRINT | M. Deane | PRINT | M. LANI | Storage |
| | | SIGNATURE | M. Deane | SIGNATURE | am. La | |
| 5/31/96 | 1845 | PRINT | M. LANI | PRINT | M. Deane | SO |
| | | SIGNATURE | am. La | SIGNATURE | M. Deane | |
| | | PRINT | M. Deane | PRINT | M. LANI | Storage |
| | | SIGNATURE | M. Deane | SIGNATURE | am. La | |
| 6/6/96 | 1400 | PRINT | M. LANI | PRINT | IGNATEVA | Ph201 |
| | | SIGNATURE | am. La | SIGNATURE | Ignateva | |
| | | PRINT | | PRINT | | |
| | | SIGNATURE | | SIGNATURE | | |
| 6/9/96 | 1600 | PRINT | M. LANI | PRINT | K. ALON | TOS |
| | | SIGNATURE | am. La | SIGNATURE | K. ALON | |
| | | PRINT | | PRINT | | |
| | | SIGNATURE | | SIGNATURE | | |
| | | PRINT | | PRINT | | |
| | | SIGNATURE | | SIGNATURE | | |
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| | | SIGNATURE | | SIGNATURE | | |
| | | PRINT | | PRINT | | |
| | | SIGNATURE | | SIGNATURE | | |
| | | PRINT | | PRINT | | |
| | | SIGNATURE | | SIGNATURE | | |

000007

500327

INTERNAL CHAIN OF CUSTODY

| SAMPLE NO. | ALIQUOT/EXTRACT NO. | SAMPLE NO. | ALIQUOT/EXTRACT NO. |
|------------|---------------------|------------|---------------------|
| WE-35 | 27577-01 | WE-56 | 27577-11 |
| SE-36 | 02 | SE-56 | 02 |
| WE-3R | 03 | SE-56 | 03 |
| WE-7R | 04 | SE-56 | 04 |
| WE-7S | 05 | WE-410 | 05 |
| WE-6R | 06 | SE-03 | 06 |
| SE-66 | 07 | | |
| SE-66 | 08 | | |
| WE-55 | 09 | | |
| WE-55 | 10 | | |

500328

NEI INTERNAL CHAIN OF CUSTODY RECORD

LOGIN _____

| DATE | TIME | RELINQUISHED BY: | RECEIVED BY: | REASON FOR CHL COMMENTS |
|----------|------|---|---|-------------------------|
| 5/29 | | PRINT M. Laney SIGNATURE M. Laney | PRINT M. Laney SIGNATURE M. Laney | Storage |
| 6/2/96 | 200 | PRINT P. Llanes SIGNATURE P. Llanes | PRINT A. Trimpou SIGNATURE A. Trimpou | HA |
| 6/3/96 | 1416 | PRINT A. Trimpou SIGNATURE A. Trimpou | PRINT M. Laney SIGNATURE M. Laney | Storage |
| 6/3/96 | 0800 | PRINT M. Laney SIGNATURE M. Laney | PRINT Hanguo W. SIGNATURE H. W. | Neg/NA |
| 6/3/96 | 1630 | PRINT Hanguo W. SIGNATURE H. W. | PRINT MARIA STAFELIS/HA SIGNATURE Maria Stafelis | CH |
| 06/03/96 | 1900 | PRINT MARIA STAFELIS/HA SIGNATURE Maria Stafelis | PRINT M. Laney SIGNATURE M. Laney | Storage |
| 6/7 | 0200 | PRINT P. Llanes SIGNATURE P. Llanes | PRINT IGNATIE SIGNATURE Ignatie | phenol |
| | | PRINT SIGNATURE | PRINT SIGNATURE | |
| 6/10/96 | 1600 | PRINT M. Laney SIGNATURE M. Laney | PRINT K. JALOW SIGNATURE K. JALOW | JOE |
| 6/14/96 | 2020 | PRINT K. JALOW SIGNATURE K. JALOW | PRINT M. Laney SIGNATURE M. Laney | Storage |
| 6/12/96 | 2200 | PRINT M. Laney SIGNATURE M. Laney | PRINT J. KAY SIGNATURE J. KAY | CL |
| 6/12/96 | 2330 | PRINT J. KAY SIGNATURE J. KAY | PRINT M. Laney SIGNATURE M. Laney | Storage |
| | | PRINT SIGNATURE | PRINT SIGNATURE | |
| | | PRINT SIGNATURE | PRINT SIGNATURE | |
| | | PRINT SIGNATURE | PRINT SIGNATURE | |
| | | PRINT SIGNATURE | PRINT SIGNATURE | |

000009

LABORATORY DELIVERABLES

| | Check if Complete |
|---|-------------------|
| 1. Cover page, Title page listing Lab Certification# facility name & address, & date of report | <u>✓</u> |
| 2. Table of Contents | <u>✓</u> |
| 3. Summary sheets listing analytical results for all targeted and non-targeted compounds | <u>NA</u> |
| 4. Summary Table cross-referencing field ID #'s vs. Lab ID #'s | <u>✓</u> |
| 5. Document bound, paginated and legible | <u>✓</u> |
| 6. Chain of Custody | <u>✓</u> |
| 7. Methodology Summary | <u>✓</u> |
| 8. Laboratory Chronicle and Holding Time check | <u>✓</u> |
| 9. Results submitted on a dry weight basis (if applicable) | <u>NA</u> |
| 10. Method Detection Limits | <u>NA</u> |
| 11. Lab certified by NJDEPE for parameters or appropriate category of parameters or a member of the USEPA CLP | <u>✓</u> |
| 12. Non-Conformance Summary | <u>✓</u> |

Michael Thomas
Laboratory Manager or Environmental
Consultant's Signature

6/28/96
Date

METAL ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY FORMAT

| | No | Yes |
|---|-------------------------------------|-------------------------------------|
| 1. Calibration Summary Meet Criteria | — | <input checked="" type="checkbox"/> |
| 2. ICP Interference Check Sample Results Summary Submitted (if applicable) / Meet Criteria | — | <input checked="" type="checkbox"/> |
| 3. Serial Dilution Summary Submitted (if applicable) / Meet Criteria | — | <input checked="" type="checkbox"/> |
| 4. Laboratory Control Sample Summary Submitted (if applicable) / Meet Criteria | — | <input checked="" type="checkbox"/> |
| 5. Blank Contamination - If yes, list compounds concentrations in each blank: | <input checked="" type="checkbox"/> | — |
| <hr/> | | |
| 6. Matrix Spike/Matrix Spike Duplicate Recoveries Meet Criteria (If not met, list those compounds and their recoveries which fall outside the acceptable range) | — | <input checked="" type="checkbox"/> |
| <hr/> | | |
| 7. Extraction Holding Time Met | — | <input checked="" type="checkbox"/> |
| If not met, list number of days exceeded for each sample: <hr/> | | |
| <hr/> | | |
| 8. Analysis Holding Time Met | — | <input checked="" type="checkbox"/> |
| If not met, list number of days exceeded for each sample: <hr/> | | |
| <hr/> | | |

Additional Comments:

Laboratory Manager: Michael A. Modell Date: 6/28/96

500331

Laboratory Chronicle

Client Name: Emcon
Date Received: 05/10/96
Sample ID: As per chain of custody

Log In No.: 27560, 2

Inorganics:

Digested: 05/17/96, 06/03/96

1. Metals _____
Analyzed: 05/20/96, 05/21/96, 06/20/96, 06/27/96
2. Metals _____
06/06/96, 06/07/96
3. Phenol _____

Other Analysis:

Ammonia Nitrogen: 05/17/96, 05/23/96

BOD: 05/16/96, 05/17/96

Chloride: 06/10/96, 06/11/96

COD: 05/20/96, 06/04/96

Color: 05/17/96, 05/18/96

Fecal Coliforms, Fecal Strep, Total Coliforms: 05/16/96

Sulfate: 05/30/96, 05/31/96

TDS: 05/22/96, 05/24/96, 05/27/96 - 05/29/96

TOC: 06/11/96

Surfactants: 05/16/96, 05/17/96

Nitrate: 05/21/96, 06/03/96

Section Supervisor
Review & Approval

Michael Thomas

Quality Control Supervisor
Review & Approval

Michael Thomas

Dates are included for re-extractions and reanalysis.

500332

**Case Narrative
Wet Chemistry**

SDG No.: OU2

Coliform Data

Sample WE-5S was determined to contain 8000 colonies/100ml. Sample DUP was determined to be 1.0U. Confirmation of this anomaly could not be performed because of the short holding time of this analysis.

500333

CASE NARRATIVE
METALS

Login No: 27560

SDG No: OU2

HOLDING TIMES

All samples associated with this SDG/LOGIN were prepared and analyzed within the specified holding time.

CALIBRATIONS

All ICV and CCV standards meet QC criteria.

The percent recovery of all components in the CRDL standard recovered within NEI control limits of $\pm 50\%$.

Note that CLP SOW ILM03.0 does not specify control limits for the CRDL standard.

BLANKS

All preparation blanks and calibration blanks associated with these analyses meet QC criteria.

MATRIX SPIKES

Sample 2755908 was utilized as the matrix spike sample for these analyses.

Site specific QC was not requested for this login, therefore, batch QC is being supplied. Note that any matrix effects demonstrated by the batch QC sample may not be indicative of any potential matrix effects associated with the samples from this login.

All matrix spike recoveries met the 75-125% recovery criteria.

DUPLICATES

Sample 2755908 was utilized as the duplicate sample for these analyses.

Site specific QC was not requested for this login, therefore, batch QC is being supplied. Note that any matrix effects demonstrated by the batch QC sample may not be indicative of any potential matrix effects associated with the samples from this login.

All Relative Percent Differences (RPDs) met QC criteria.

Note that all RPDs of 200% are due to one analyte being reported above the Instrument Detection Limit (IDL) and one result below the IDL.

500334

LABORATORY CONTROL SAMPLE (LCS)

The percent recovery of all components in the LCS met QC criteria.

SERIAL DILUTION

A serial dilution was performed on sample 2755908. All percent differences (%D) were within the $\pm 10\%$ acceptance limits.

SAMPLES

All samples were analyzed in accordance with the requirements of the methods described in SW-846 Method 6010A.

No further analytical problems were encountered.

SPECIAL PROJECT NOTES

None.

CASE NARRATIVE
METALS

Login No: 27579

SDG No: OU2

HOLDING TIMES

All samples associated with this SDG/LOGIN were prepared and analyzed within the specified holding time.

CALIBRATIONS

All ICV and CCV standards meet QC criteria.
The percent recovery of all components in the CRDL standard recovered within NEI control limits of $\pm 50\%$.
Note that CLP SOW ILM03.0 does not specify control limits for the CRDL standard.

BLANKS

All preparation blanks and calibration blanks associated with these analyses meet QC criteria.

MATRIX SPIKES

Sample GEI-5G was utilized as the matrix spike sample for these analyses.
All matrix spike recoveries met the 75-125% recovery criteria.

DUPLICATES

Sample GEI-5G was utilized as the duplicate sample for these analyses.

All Relative Percent Differences (RPDs) met QC criteria.
Note that all RPDs of 200% are due to one analyte being reported above the Instrument Detection Limit (IDL) and one result below the IDL.

LABORATORY CONTROL SAMPLE (LCS)

The percent recovery of all components in the LCS met QC criteria.

SERIAL DILUTION

A serial dilution was performed on sample GEI-5G. All percent differences (%D) were within the $\pm 10\%$ acceptance limits.

SAMPLES

All samples were analyzed in accordance with the requirements of the methods described in CLP SOW ILM03.0.
No further analytical problems were encountered.

SPECIAL PROJECT NOTES

None.

500336

I certify that this data package has been reviewed for the quality control and quality assurance measures for all analyzed methodologies.

Michael Shmookler

Michael Shmookler, Ph.D.
Laboratory Operations Manager

500337

METHODOLOGY SUMMARY

| AQUEOUS METHODOLOGIES: | REF 1 | REF 2 | REF 3 | REF 5 |
|---|-------|------------------------------|---------|-------|
| BNA, Pesticides/PCB's Extraction | | 3510/3520 | | |
| AA/ICP Sample Preparation | 200.7 | | | |
| Furnace Sample Preparation | 200.0 | | | |
| Mercury Sample Preparation | 245.1 | | | |
| Hexavalent Chromium Sample Preparation | 218.5 | | | |
| Clean-Up | | 3610/3620/3630/ 3640/3660 | | |
| Organochlorine Pesticide and PCB's by Gas Chromatography | | | 608 | 505 |
| Herbicides by Gas Chromatography | | | 362 | 515.1 |
| Purgeable Organics by GC/MS | | | 624 | 524.2 |
| Base/Neutral, Acids by GC/MS | | | 625 | 525 |
| 2,3,7,8-TCDD by GC/MS | | | 613/625 | |
| BTEX | | | 602 | 502.2 |
| EDB/DECP by Microextraction | | | | 504.1 |
| NON-AQUEOUS METHODOLOGIES: | | | | |
| BNA, Pesticides/PCB's Extraction | | 3550 | | |
| AA/ICP Sample Preparation | | 3050 | | |
| Furnace Sample Preparation | | 3020/3030/3050 | | |
| Mercury Sample Preparation | | 7471 | | |
| Clean-Up | | 3610/3620/3630/ 3640/3660 | | |
| GC, Gas Chromatography/Mass Spectrometry: | | | | |
| Purgeable Organics | | 8240/8021 | | |
| Base/Neutral and Acid Extractables | | 8270 | | |
| Organophosphorus Pesticides | | 8140 | | |
| Organochlorine Pesticide and PCB's by Gas Chromatography | | 8080 | | |
| BTEX | | 8020 | | |
| Halogenated Purgeable Organics | | 8010 | | |

METHODOLOGY SUMMARY

| INDUCTIVELY COUPLED PLASMA (ICP): | REFERENCE 1 | REFERENCE 2 |
|-----------------------------------|-------------|-------------------------|
| Aluminum | 200.7 | 6010 |
| Antimony | 200.7 | 6010 |
| Barium | 200.7 | 6010 |
| Beryllium | 200.7 | 6010 |
| Cadmium | 200.7 | 6010 |
| Calcium | 200.7 | 6010 |
| Chromium | 200.7 | 6010 |
| Cobalt | 200.7 | 6010 |
| Copper | 200.7 | 6010 |
| Iron | 200.7 | 6010 |
| Lead | 200.7 | 6010 |
| Magnesium | 200.7 | 6010 |
| Manganese | 200.7 | 6010 |
| Molybdenum | 200.7 | 6010 |
| Nickel | 200.7 | 6010 |
| Potassium | 200.7 | 6010 |
| Silver | 200.7 | 6010 |
| Sodium | 200.7 | 6010 |
| Tin | 200.7 | 6010 |
| Titanium | 200.7 | 6010 |
| Vanadium | 200.7 | 6010 |
| Zinc | 200.7 | 6010 |
| FURNACE AA: | | |
| Antimony | 204.1 | 7041 |
| Arsenic | 206.2 | 7060 |
| Lead | 239.2 | 7421 |
| Selenium | 270.2 | 7740 |
| Thallium | 279.2 | 7841 |
| Tin | 282.2 | |
| Vanadium | 286.2 | 7911 |
| Mercury | 245.1 | 7470/7471 |
| ICAP: | | |
| Priority Pollutants | 200.7 | 6010/7060/ 7470/7740 |
| TAL Metals | 200.7 | 6010/7060/ 7470/7740 |
| RCRA Metals | 200.7 | 6010/7060/ 7470/7740 |

000018

500339

METHODOLOGY SUMMARY

| ADDITIONAL INORGANIC PARAMETERS: | REFERENCE 1 | REFERENCE 2 |
|---|-------------|-----------------|
| Biochemical Oxygen Demand | 405.1 | |
| Bromide | 320.1 | |
| Color | 110.2 | |
| Conductance | 120.1 | |
| Conductance | | 9050 |
| Odor | 140.1 | |
| pH | 150.1 | |
| pH | | 9045/9040/9041 |
| TDS | 160.1 | |
| TSS | 160.2 | |
| TS | 160.3 | |
| Hardness | 130.1 | |
| Temperature | 170.1 | |
| Turbidity | 180.1 | |
| Acidity | 305.1 | |
| Alkalinity | 310.1 | |
| Ammonia | 350.2/350.3 | |
| Chloride | 325.3 | |
| Chloride | | 9252 |
| Residual Chlorine | 330.2 | |
| COD | 410.3/410.4 | |
| Cyanide (Total & Amenable) | 335.3/335.1 | 9010/9012 |
| Oil & Grease | 413.1/413.2 | |
| Oil & Grease | | 9070/9071 |
| Fluoride | 340.2 | |
| TKN | 351.2 | |
| NO2/NO3 | 353.2 | 9200 |
| D.O | 360.2 | |
| Petroleum Hydrocarbons (Reference 4) | 418.1 | 9066 |
| Phenol | 420.2 | |
| Phosphorus | 365.1 | |
| Settleable Solids | 160.5 | |
| Silica | 370.1 | |
| Sulfate | 375.2/375.4 | 9038 |
| Sulfide | 376.1 | 9030 |
| Surfactants | 425.1 | |
| TOC | 415.1 | 9060 |
| TOX | | 9020 |
| MISCELLANEOUS ANALYSIS: | | |
| Extraction Procedure Toxicity | | 1310 |
| Ignitability | | 1010 |
| Corrosivity | | 1110 |
| Reactivity | | Chapter 8.3 |
| Paint Filter Liquid Test | | 9095 |
| Toxicity Characteristic Leaching Procedure (TCLP) | | |
| Cation Exchange Capacity of Soils | | (REF 4) 9080 |

000019

METHODOLOGY SUMMARY

REFERENCE 6

| | |
|-------------------------------------|-------------|
| Total Coliform | 909A |
| Fecal Coliform | 9096 |
| Fecal Streptococcus Coliform | 910B |
| Standard Plate Count | 907 |
| Hexavalent Chromium | 312B |
| Carbonaceous BOD | 507 |

500341

METHODOLOGY SUMMARY

REFERENCES:

- (1) USEPA-600/4-79-020, Methods for Chemical Analysis of Water and Wastewater
- (2) USEPA SW 846, Test Methods for Evaluating Solid Waste, Third Edition
- (3) Federal Register 40 CFR Part 136, Vol.49, No.209 Test Parameters for the Analysis of Pollutants
- (4) Federal Register Vol.51, No.216 Friday, 11/7/86, pp.40643-40652
- (5) Method for the Determination of Organic Compounds in Drinking Water, EPA 500/4-88/039, Dec. 1988
- (6) Standard Method for Examination of Water and Wastewater, 15 Edition 1991

nytest environmental_{nc}

Method Qualifiers for Inorganics

FORM I-IN includes fields for three types of results qualifiers. These qualifiers must be completed as follows:

- * C (Concentration) qualifier -- Enter "B" if the reported value was obtained from a reading that was less than the Contract Required Detection Limit (CRDL) but greater than or equal to the Instrument Detection Limit (IDL). If the analyte was analyzed for but not detected, a "U" must be entered.
- * Q qualifier -- Specified entries and their meanings are as follows:
 - E - The reported value is estimated because of the presence of interference.
 - M - Duplicate precision not met (CV > 20%).
 - N - Spiked sample recovery not within control limits.
 - S - The reported value was determined by Method of Standard Addition (MSA).
 - W - Post-digestion spike for Furnace AA analysis is out of control limits (85 - 115%), while sample absorbance is less than 50% of spike absorbance.
 - * - Duplicate analysis not within control limits.
 - + - Correlation Coefficient for the MSA is less than 0.995.Entering "S", "W" or "+" is mutually exclusive.
- * M (Method) qualifier - enter:
 - "P" for ICP
 - "A" for Flame AA
 - "F" for Furnace AA
 - "CV" for Cold Vapor AA
 - "AV" for Automated Cold Vapor AA
 - "AS" for Semi-Automated Spectrophotometric
 - "C" for Manual Spectrophotometric
 - "T" for Titrimetric
 - "NR" if the analyte is not required to be analyzed.

METALS DATA

000023

NYTEST ENVIRONMENTAL INC.

SAMPLE NO.

RR-01

QC Report No. OU2

Date Received: 05/15/96

Concentration Units (ug/L or mg/kg dry weight): UG/L

[illegible]

P: ICP; F : GFAA; CV: Cold Vapor; AS: Automated Spectrophotometric
Note: A "U" in the "C" (Concentration) column indicates the analyte was
not detected in this sample; "B" = Sample value greater than Instrument
Detection Limit, but less than reporting limit; "NR" = Not Required.

RR-01

500345

NYTEST ENVIRONMENTAL INC.

SAMPLE NO.

RR-02

QC Report No.0U2

Percent Solids : 0.0

[illegible]

P: ICP; F : GFAA; CV: Cold Vapor; AS: Automated Spectrophotometric
Note: A "U" in the "C" (Concentration) column indicates the analyte was
not detected in this sample; "B" = Sample value greater than Instrument
Detection Limit, but less than reporting limit; "NR" = Not Required.

RR-02

NYTEST ENVIRONMENTAL INC.

SAMPLE NO.

Lab Sample ID: 756003
Date Received: 05/15/96

Concentration Units (ug/L or mg/kg dry weight): UG/L

[illegible]

CODES :

P: ICP; F : GFAA; CV: Cold Vapor; AS: Automated Spectrophotometric
Note: A "U" in the "C" (Concentration) column indicates the analyte was
not detected in this sample; "B" = Sample value greater than Instrument
Detection Limit, but less than reporting limit; "NR" = Not Required.

Comments:

RR-03

500347

NYTEST ENVIRONMENTAL INC.

SAMPLE NO.

WE-10S

QC Report No. OU2

Lab Sample ID: 756005
Date Received: 05/15/96

[illegible]

P: ICP; F : GFAA; CV: Cold Vapor; AS: Automated Spectrophotometric
Note: A "U" in the "C" (Concentration) column indicates the analyte was
not detected in this sample; "B" = Sample value greater than Instrument
Detection Limit, but less than reporting limit; "NR" = Not Required.

WE-10S SODIUM AT A 25X DILUTION

SAMPLE NO.

WE-10R

QC Report No. OU2

Percent Solids : 0.0

[illegible]

WE-10R SODIUM AT A 25X DILUTION

NYTEST ENVIRONMENTAL INC.

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: NYTEST_ENV_INC

Contract: 9622307

Lab Code: NYTEST

Login No.: 27560__

QC Report No.: OU2

Initial Calibration Source: SPEX

Continuing Calibration Source: SPEX

Concentration Units: ug/L

[illegible]

NR : Analyte Not Required

500352

NYTEST ENVIRONMENTAL INC.

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: NYTEST_ENV_INC_____

Contract: 9622307_____

Lab Code: NYTEST

Login No.: 27560__

QC Report No.: OU2_____

Initial Calibration Source: SPEX_____

Continuing Calibration Source: SPEX_____

Concentration Units: ug/L

[illegible]

NR : Analyte Not Required

NYTEST ENVIRONMENTAL INC.

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: NYTEST_ENV_INC_____

Contract: 9622307_____

Lab Code: NYTEST

Login No.: 27560_

QC Report No.: OU2__

Initial Calibration Source: SPEX_____

Continuing Calibration Source: SPEX

Concentration Units: ug/L

NR : Analyte Not Required

500354

CRDL STANDARD FOR AA AND ICP

ICP CRDL Standard Source: SPEX

[illegible]

ANALYTICAL AND METHOD BLANK SUMMARY

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L_

[illegible]

NR = Analyte Not Requested

ANALYTICAL AND METHOD BLANK SUMMARY

Preparation Blank Concentration Units (ug/L or mg/kg): _____

500357

ANALYTICAL AND METHOD BLANK SUMMARY

Preparation Blank Concentration Units (ug/L or mg/kg): _____

500358

ICP INTERFERENCE CHECK SAMPLE

ICS Source: EPA

[illegible]

ICP INTERFERENCE CHECK SAMPLE

ICS Source: EPA_____

[illegible]

ICP INTERFERENCE CHECK SAMPLE

ICS Source: EPA

[illegible]

NYTEST ENVIRONMENTAL INC.

SAMPLE NO.

MATRIX SPIKE RECOVERY DATA SHEET

ZZZZZS

ab Name: NYTEST ENV INC

Contract: 9622307

Lab Code: NYTEST

Login No.: 27560_

QC Report No. : OU2

Matrix (soil/water): WATER

Level (low/med): LOW

Solids for Sample: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

[illegible]

Comments:

NR : Analyte Not Required

NYTEST ENVIRONMENTAL INC.

SAMPLE NO.

DUPLICATES

ZZZZZZD

Lab Name: NYTEST_ENV_INC_____ Contract: 9622307_____

Lab Code: NYTEST Login No.: 27560_

QC Report No. : OU2__

Matrix (soil/water): WATER

Level (low/med): LOW

% Solids for Sample: 0.0

% Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

[illegible]

NR : Analyte Not Requested

LABORATORY CONTROL SAMPLE

Aqueous LCS Source: SPEX

[illegible]

ICP SERIAL DILUTION

ZZZZZZL

Level (low/med): LOW__

NYTEST ENVIRONMENTAL INC.

Instrument Detection Limits (Quarterly)

Lab Name: NYTEST ENV INC

Contract: 9622307

Lab Code: NYTEST Login No.: 27560

SDG No.: OU2

ICP ID Number: 61

Date: 04/16/96

Flame AA ID Number : _____

Furnace AA ID Number : _____

Comments:

NYTEST ENVIRONMENTAL INC.

Instrument Detection Limits (Quarterly)

Lab Name: NYTEST ENV INC Contract: 9622307

Lab Code: NYTEST Login No.: 27560 SDG No.: OU2

ICP ID Number: TRACE Date: 04/16/96

Flame AA ID Number : _____

Furnace AA ID Number :

Comments:

INORGANICS ANALYSIS DATA SHEET

WE-3S

Percent Solids : 0.0

SAMPLE NO.

GEI-3G

Lab Name: NYTEST_ENV_INC_____

Contract: 9622307

Tab Code: NYTEST

Login No.: 27579_

QC Report No. OU2____

Matrix (soil/water): WATER

Lab Sample ID: 757902

Level (low/high) : LOW

Date Received: 05/16/96

Percent Solids : 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CODES :

P: ICP; F : GFAA; CV: Cold Vapor; AS: Automated Spectrophotometric

Note: A "U" in the "C" (Concentration) column indicates the analyte was not detected in this sample; "B" = Sample value greater than Instrument Detection Limit, but less than reporting limit; "NR" = Not Required.

Comments:

GEI-3G

SAMPLE NO.

WE-3R

Percent Solids : 0.0

SAMPLE NO.

WE-7R

Date Received: 05/16/96

500371

INORGANICS ANALYSIS DATA SHEET

WE-7S

INORGANICS ANALYSIS DATA SHEET

WE-6R

Contract: 9622307

QC Report No. OU2_____

Percent Solids : 0.0

[illegible]

P: ICP; F : GFAA; CV: Cold Vapor; AS: Automated Spectrophotometric
Note: A "U" in the "C" (Concentration) column indicates the analyte was
not detected in this sample; "B" = Sample value greater than Instrument
Detection Limit, but less than reporting limit; "NR" = Not Required.

WE-6R

INORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

GEI-6G

Lab Sample ID: 757907

Date Received: 05/16/96

Concentration Units (ug/L or mg/kg dry weight): UG/L

[illegible]

P: ICP; F : GFAA; CV: Cold Vapor; AS: Automated Spectrophotometric
Note: A "U" in the "C" (Concentration) column indicates the analyte was
not detected in this sample; "B" = Sample value greater than Instrument
Detection Limit, but less than reporting limit; "NR" = Not Required.

GEI-6G

SAMPLE NO.

Lab Sample ID: 757908
Date Received: 05/16/96

Concentration Units (ug/L or mg/kg dry weight): UG/L_

[illegible]

CODES :

P: ICP; F : GFAA; CV: Cold Vapor; AS: Automated Spectrophotometric
Note: A "U" in the "C" (Concentration) column indicates the analyte was
not detected in this sample; "B" = Sample value greater than Instrument
Detection Limit, but less than reporting limit; "NR" = Not Required.

Comments:

GEI-6S

INORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

WE-5S

Lab Name: NYTEST_ENV_INC

Contract: 9622307

Lab Code: NYTEST

Login No.: 27579_

QC Report No. OU2_____

Matrix (soil/water): WATER

Lab Sample ID: 757909

Level (low/high) : LOW

Date Received: 05/16/96

Percent Solids : 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

[illegible]

P: ICP; F : GFAA; CV: Cold Vapor; AS: Automated Spectrophotometric
Note: A "U" in the "C" (Concentration) column indicates the analyte was
not detected in this sample; "B" = Sample value greater than Instrument
Detection Limit, but less than reporting limit; "NR" = Not Required.

Comments:

WE-5S

INORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

WE-5R

Lab Name: NYTEST ENV INC Contract: 9622307

Lab Code: NYTEST

Login No.: 27579

QC Report No. OU2_____

Matrix (soil/water): WATER

Lab Sample ID: 757911

Level (low/high) : LOW

Date Received: 05/16/96

Percent Solids : 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

[illegible]

CODES :

P: ICP; F : GFAA; CV: Cold Vapor; AS: Automated Spectrophotometric
Note: A "U" in the "C" (Concentration) column indicates the analyte was
not detected in this sample; "B" = Sample value greater than Instrument
Detection Limit, but less than reporting limit; "NR" = Not Required.

Comments:

WE-5R

SAMPLE NO.

FB-03

Lab Sample ID: 757916
Date Received: 05/16/96

NYTEST ENVIRONMENTAL INC.

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: NYTEST ENV INC

Contract: 9622307

Lab Code: NYTEST Login No.: 27579

QC Report No.: OU2

Initial Calibration Source: SPEX

Continuing Calibration Source: SPEX

Concentration Units: ug/L

[illegible]

IR : Analyte Not Required

NYTEST ENVIRONMENTAL INC.

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Tab Name: NYTEST_ENV_INC

Contract: 9622307

Lab Code: NYTEST

Login No.: 27579_

QC Report No.: OU2_____

Initial Calibration Source: SPEX

Continuing Calibration Source: SPEX

Concentration Units: ug/L

[illegible]

R : Analyte Not Required

NYTEST ENVIRONMENTAL INC.

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: NYTEST_ENV_INC_____

Contract: 9622307

Lab Code: NYTEST Login No.: 27579_

QC Report No.: OU2

Initial Calibration Source: SPEX

Continuing Calibration Source: SPEX_____

Concentration Units: ug/L

[illegible]

IR : Analyte Not Required

NYTEST ENVIRONMENTAL INC.

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: NYTEST ENV INC

Contract: 9622307

Lab Code: NYTEST

Login No.: 27579

QC Report No.: OU2

Initial Calibration Source: SPEX

Continuing Calibration Source: SPEX

Concentration Units: ug/L

[illegible]

NR : Analyte Not Required

NYTEST ENVIRONMENTAL INC.

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: NYTEST ENV INC

Contract: 9622307

Lab Code: NYTEST Login No.: 27579

QC Report No.: OU2_____

Initial Calibration Source: SPEX

Continuing Calibration Source: SPEX

Concentration Units: ug/L

[illegible]

IR : Analyte Not Required

NYTEST ENVIRONMENTAL INC.

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: NYTEST ENV INC

Contract: 9622307

Lab Code: NYTEST

Login No.: 27579

QC Report No.: OU2

Initial Calibration Source: SPEX

Continuing Calibration Source: SPEX

Concentration Units: ug/L

[illegible]

NR : Analyte Not Required

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Continuing Calibration Source: SPEX

Concentration Units: ug/L

NR : Analyte Not Required

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Continuing Calibration Source: SPEX

Concentration Units: ug/L

[illegible]

500389

NYTEST ENVIRONMENTAL INC.

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: NYTEST ENV INC

Contract: 9622307

Lab Code: NYTEST Login No.: 27579

QC Report No.: OU2

Initial Calibration Source: SPEX

Continuing Calibration Source: SPEX

Concentration Units: ug/L

[illegible]

IR : Analyte Not Required

CRDL STANDARD FOR AA AND ICP

ICP CRDL Standard Source: SPEX

[illegible]

CRDL STANDARD FOR AA AND ICP

ICP CRDL Standard Source: SPEX

[illegible]

CRDL STANDARD FOR AA AND ICP

ICP CRDL Standard Source: SPEX

[illegible]

ANALYTICAL AND METHOD BLANK SUMMARY

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L_

500394

ANALYTICAL AND METHOD BLANK SUMMARY

Preparation Blank Concentration Units (ug/L or mg/kg): _____

[illegible]

500395

NYTEST ENVIRONMENTAL INC.

ANALYTICAL AND METHOD BLANK SUMMARY

Lab Name: NYTEST ENV INC

Contract: 9622307

Lab Code: NYTEST Login No.: 27579

QC Report No.: OU2

Preparation Blank Matrix (soil/water): _____

Preparation Blank Concentration Units (ug/L or mg/kg): _____

[illegible]

NR = Analyte Not Requested

NEI FORM 4 - (9/93)

500396

ANALYTICAL AND METHOD BLANK SUMMARY

Preparation Blank Concentration Units (ug/L or mg/kg): _____

[illegible]

500397

ANALYTICAL AND METHOD BLANK SUMMARY

Preparation Blank Concentration Units (ug/L or mg/kg): _____

[illegible]

500398

ANALYTICAL AND METHOD BLANK SUMMARY

Preparation Blank Concentration Units (ug/L or mg/kg): _____

[illegible]

NR = Analyte Not Requested

ICP INTERFERENCE CHECK SAMPLE

ICS Source: EPA

ICP INTERFERENCE CHECK SAMPLE

ICS Source: EPA

[illegible]

ICP INTERFERENCE CHECK SAMPLE

ICS Source: EPA

NYTEST ENVIRONMENTAL INC.

SAMPLE NO.

MATRIX SPIKE RECOVERY DATA SHEET

GEI-5GS

Lab Name: NYTEST ENV INC

Contract: 9622307

Lab Code: NYTEST

Login No.: 27579

QC Report No. : OU2

Matrix (soil/water): WATER

Level (low/med): LOW

% Solids for Sample: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Comments:

GEI-5GMSD

NR : Analyte Not Required

NYTEST ENVIRONMENTAL INC.

SAMPLE NO.

DUPLICATES

GEI-5GD

Lab Name: NYTEST_ENV_INC_____ Contract: 9622307_____

Lab Code: NYTEST Login No.: 27579_

QC Report No. : OU2_____

Matrix (soil/water): WATER

Level (low/med): LOW

% Solids for Sample: 0.0

% Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

[illegible]

NR : Analyte Not Requested

LABORATORY CONTROL SAMPLE

Aqueous LCS Source: SPEX_____

500405

ICP SERIAL DILUTION

GEI-5GL

Level (low/med): LOW__

NYTEST ENVIRONMENTAL INC.

Instrument Detection Limits (Quarterly)

Lab Name: NYTEST_ENV_INC_____ Contract: 9622307_____

Lab Code: NYTEST Login No.: 27579_ _____ SDG No.: OU2_

ICP ID Number: TRACE_____ Date: 04/16/96

Flame AA ID Number : _____

Furnace AA ID Number : _____

Comments:

GENERAL CHEMISTRY DATA

000083

REPORT OF ANALYSIS

Log In No.: 27560

We find as follows:

| CLIENT ID | LAB ID | Biochemical Oxygen Demand mg/L | Chloride mg/L | Chemical Oxygen Demand mg/L | Color Pt - Co | Surfactants mg/L | Ammonia Nitrogen mg/L |
|-----------|---------|--------------------------------------|------------------|-----------------------------------|------------------|---------------------|-----------------------------|
| RR-01 | 2756001 | 4.7 | 35.6 | 36.8 | 300 | 0.18 | 0.05 U |
| RR-02 | 2756002 | 3.0 U | 30.2 | 43.5 | 200 | 0.11 | 0.05 U |
| RR-03 | 2756003 | 3.1 | 31.3 | 3.0 U | 200 | 0.15 | 0.05 U |
| RR-04 | 2756004 | 3.0 U | 30.5 | 5.1 | 200 | 0.25 | 0.05 U |
| WE-10S | 2756005 | 3.0 U | 4200 | 368 | 200 | 0.88 | 3.18 |
| WE-10R | 2756006 | 3.0 U | 4230 | 380 | 200 | 0.65 | 1.25 |
| GEI10G | 2756007 | 127 | 136 | 141 | 300 | 0.57 | 75.4 |
| Method | Blank | 3.0 U | 1.0 U | 3.0 U | 10 U | 0.05 U | 0.05 U |

| CLIENT ID | LAB ID | Nitrate mg/L | Phenol mg/L | Sulfate mg/L | Total Dissolved Solids mg/L | Total Organic Carbon mg/L |
|-----------|---------|-----------------|----------------|-----------------|--------------------------------------|------------------------------------|
| RR-01 | 2756001 | 1.21 | 0.0035 U | 32.8 | 175 | 1.0 U |
| RR-02 | 2756002 | 1.13 | 0.0035 U | 19.9 | 161 | 1.0 U |
| RR-03 | 2756003 | 1.15 | 0.0035 U | 23.6 | 146 | 1.0 U |
| RR-04 | 2756004 | 1.15 | 0.0035 U | 20.1 | 150 | 1.0 U |
| WE-10S | 2756005 | 0.07 | 0.0035 U | 435 | 7140 | 20.9 |
| WE-10R | 2756006 | 0.04 | 0.0035 U | 405 | 33 | 20.5 |
| GEI10G | 2756007 | 0.04 U | 0.0035 U | 888 | 398 | 34.1 |
| Method | Blank | 0.04 U | 0.0035 U | 3.0 U | 10 U | 1.0 U |

****Please Note:** The Fecal Coliform, Fecal Strep and Total Coliform tests could not be performed, because no sample was received for these tests.

500409

REPORT OF ANALYSIS

Log In No.: 27579

We find as follows:

| CLIENT ID | LAB ID | Biochemical Oxygen Demand mg/L | Chloride mg/L | Chemical Oxygen Demand mg/L | Color Pt - Co | Fecal Coliforms colonies/100 mL | Fecal Strep colonies/100 mL | Total Coliforms colonies/100 mL |
|-----------|---------|--------------------------------|---------------|-----------------------------|---------------|---------------------------------|-----------------------------|---------------------------------|
| WE-3S | 2757901 | 60 | 95.4 | 2520 | 2500 | 1.0 U | 1.0 U | 16800 |
| GEI-3G | 2757902 | 3.0 U | 16.4 | 108 | 1500 | 1.0 U | 1.0 U | 1.0 U |
| WE-3R | 2757903 | 3.0 U | 3700 | 270 | 1500 | 1.0 U | 1.0 U | 1.0 U |
| WE-7R | 2757904 | 3.0 U | 4130 | 127 | 200 | 1.0 U | 1.0 U | 1.0 U |
| WE-7S | 2757905 | 3.0 U | 1280 | 597 | 1500 | 3200 | 1.0 U | * |
| WE-6R | 2757906 | 3.0 U | 3380 | 249 | 300 | 5000 | 1.0 U | * |
| GEI-6G | 2757907 | 25.3 | 910 | 1100 | 1500 | 10000 | 1.0 U | * |
| GEI-6S | 2757908 | 22.5 | 59.0 | 112 | 300 | 15000 | 1.0 U | * |
| WE-5S | 2757909 | 20.7 | 2100 | 433 | 1500 | 8000 | 1.0 U | * |
| DUP | 2757910 | 18.7 | 2140 | 488 | 1500 | 1.0 U | 1.0 U | 1.0 U |
| WE-5R | 2757911 | 11.0 | 3930 | 193 | 1000 | 1.0 U | 1.0 U | 1.0 U |
| GEI-5G | 2757912 | 43.3 | 2940 | 634 | 1500 | 1.0 U | 1.0 U | 1.0 U |
| WE-114D | 2757915 | 4.8 | 68.5 | 26.3 | 300 | 1.0 U | 1.0 U | 300 |
| FB-03 | 2757916 | 3.0 U | 1.0 U | 3.0 U | 40 | 1.0 U | 1.0 U | 1.0 U |
| Method | Blank | 3.0 U | 1.0 U | 3.0 U | 10 U | 1.0 U | 1.0 U | 1.0 U |

| CLIENT ID | LAB ID | Surfactants mg/L | Ammonia Nitrogen mg/L | Nitrate mg/L | Phenol mg/L | Sulfate mg/L | Total Dissolved Solids mg/L | Total Organic Carbon mg/L |
|-----------|---------|------------------|-----------------------|--------------|-------------|--------------|-----------------------------|---------------------------|
| WE-3S | 2757901 | 0.83 | 21.3 | 0.04 U | 0.191 | 181 | 8870 | 818 |
| GEI-3G | 2757902 | 0.12 | 28.5 | 0.08 | 0.0035 U | 273 | 520 | 11.6 |
| WE-3R | 2757903 | 0.48 | 0.696 | 0.09 | 0.0035 U | 303 | 5590 | 15.6 |
| WE-7R | 2757904 | 0.22 | 0.316 | 0.05 | 0.0035 U | 137 | 6020 | 1.0 U |
| WE-7S | 2757905 | 0.43 | 36.7 | 0.12 | 0.0035 U | 710 | 3470 | 100 |
| WE-6R | 2757906 | 0.38 | 10.5 | 0.04 U | 0.0035 U | 230 | 8640 | 10.4 |
| GEI-6G | 2757907 | 0.35 | 538 | 1.32 | 0.0035 U | 63.7 | 2930 | 126 |
| GEI-6S | 2757908 | 0.05 U | 3.14 | 6.65 | 0.0035 U | 230 | 923 | 9.12 |
| WE-5S | 2757909 | 0.51 | 9.42 | 0.04 U | 0.0035 U | 171 | 5880 | 128 |
| DUP | 2757910 | 0.49 | 7.69 | 0.04 | 0.0035 U | 171 | 6120 | 126 |
| WE-5R | 2757911 | 0.05 U | 0.671 | 0.08 | 0.0035 U | 356 | 10300 | 6.94 |
| GEI-5G | 2757912 | 0.54 | 218 | 0.25 U | 0.0035 U | 81.0 | 1780 | 113 |
| WE-114D | 2757915 | 0.05 U | 0.05 U | 0.09 | 0.0035 U | 293 | 563 | 1.0 U |
| FB-03 | 2757916 | 0.05 U | 0.05 U | 0.04 | 0.0035 U | 3.0 U | 47 | 1.0 U |
| Method | Blank | 0.05 U | 0.05 U | 0.04 U | 0.0035 U | 3.0 U | 10 U | 1.0 U |

* - Several samples were found to contain non-coliform bacteria at a concentration that interfered with the Total Coliform analysis. However the fecal coliform media, being more specific in what it allows to grow, did not have the same interference. Therefore, Fecal Coliform results for these samples are being submitted.

500410

QC/QA REPORT

CLIENT : Emcon

Log In Number : 27560

| PARAMETER | Sample Result | Duplicate Sample Result | % RPD | Sample Result for spike | Spike Added | Spike + Sample Result | % Spike Recovered | Sample for QC from same sample? (dup/spike) |
|---------------------------------|---------------|-------------------------|-------|-------------------------|-------------|-----------------------|-------------------|---|
| Biochemical Oxygen Demand, mg/L | 3 U | 3 U | NC | 3 U | 198 | 194 | 98.0 | NO/NO |
| Chloride, mg/L | 3230 | 3220 | 0.3 | 3230 | 400 | 3620 | 97.5 | NO/NO |
| Chemical Oxygen Demand, mg/L | 355.4 | 359.4 | 1.1 | 355.4 | 250.0 | 622.1 | 105.7 | NO/NO |
| Color, Pt-Co | 150 | 150 | 0.0 | | | | | NO |
| Surfactants, mg/L | 0.88 | 0.89 | 1.1 | 0.88 | 0.60 | 1.54 | 110.0 | NO/NO |
| Ammonia, Nitrogen, mg/L | 0.05 U | 0.05 U | NC | 0.05 U | 5.0 | 4.92 | 98.4 | YES/YES |
| Nitrate, Nitrogen, mg/L | 1.21 | 1.18 | 2.5 | 1.21 | 0.50 | 1.67 | 92.0 | YES/YES |
| Phenols, mg/L | 0.003 U | 0.003 U | NC | 0.003 U | 0.100 | 0.084 | 84.0 | NO/NO |
| Sulfate, mg/L | 159.2 | 163.8 | 2.8 | 159.2 | 400 | 527 | 92.0 | YES/YES |
| Total Dissolved Solid, mg/L | 146 | 156 | 6.6 | 146 | 20 | 166 | 100.0 | YES/YES |
| Total Organic Carbon, mg/L | 20.47 | 20.88 | 2.0 | 20.47 | 100.0 | 115.3 | 94.8 | YES/NO |

NC : Non-calculable
NA : Non-Available

E : Above method limit
U : Below method reporting limit

500411

QC/QA REPORT

CLIENT : Emcon

Log In Number : 27577

| PARAMETER | Sample Result | Duplicate Sample Result | % RPD | Sample Result for spike | Spike Added | Spike + Sample Result | % Spike Recovery | Sample for QC from same sample? (dup/spike) |
|---------------------------------|------------------|-------------------------------|-------|----------------------------------|----------------|-----------------------------|---------------------|--|
| Biochemical Oxygen Demand, mg/L | 43.3 | 30.7 | 34.1 | 43.3 | 198 | 227.3 | 92.7 | YES/YES |
| Chloride, mg/L | 2940 | 2910 | 1.0 | 2940 | 400 | 3370 | 107.5 | YES/YES |
| Chemical Oxygen Demand, mg/L | 634 | 623 | 1.8 | 634 | 250 | 850 | 85.6 | YES/YES |
| Color, Pt-Co | 1500 | 1500 | 0.0 | | | | | NO |
| Surfactants, mg/L | 0.54 | 0.55 | 1.8 | 0.54 | 0.60 | 1.14 | 100.0 | YES/YES |
| Ammonia, Nitrogen, mg/L | 217.9 | 217.3 | 0.3 | 217.9 | 100.0 | 306.2 | 89.7 | YES/YES |
| Nitrate, Nitrogen, mg/L | 0.04 U | 0.04 U | NC | 0.04 U | 2.5 | 2.25 | 90.0 | YES/YES |
| Phenols, mg/L | 0.003 U | 0.003 U | NC | 0.003 U | 0.100 | 0.090 | 90.0 | NO/NO |
| Sulfate, mg/L | 171.3 | 171.3 | 0.0 | 171.3 | 200 | 356.2 | 92.5 | YES/YES |
| Total Dissolved Solid, mg/L | 1778 | 1724 | 3.1 | 1778 | 100 | 1854 | 75.0 | YES/YES |
| Total Organic Carbon, mg/L | 113.3 | 113.0 | 0.3 | 56.2 | 100.0 | 156.2 | 100.0 | YES/YES |

NC : Non-calculable
NA : Non-Available

E : Above method limit
U : Below method reporting limit

500412

APPENDIX B

500413



EMCON

FIELD SAMPLING DATA SHEET

sample ID WIR sample date/time 5/14/96 1435
 (lab) sample number #889 NEI field personnel SI, GA, RB, BM
 project Kin BUC 001 observer _____
 project number 12568.001.000
 weather conditions (estimate wind, cloud, precip, humidity, temp) clear, pty sun, 60's, sunny

SAMPLE TYPE ☐ composite ☒ grab ☐ groundwater ☐ surface water ☐ soil ☐ sediment
☐ leachate ☐ industrial ☐ storm sewer ☐ gas
☐ other _____

MONITORING WELL DATA casing diameter 2" ☒ PVC ☐ steel ☐ other
 static water level 18.47 from ☒ well casing from ☐ protective casing
 bottom depth 35.19 from ☒ well casing from ☐ protective casing
 static water level indicator type ☐ steel tape ☒ electronic ☐ other
 linear conversion .164 water volume in well 2.68 gal
 well condition good

MONITORING WELL PURGE DATA ☐ submersible pump ☐ peristaltic pump ☐ suction pump ☐ PVC bailer
☐ poly bailer ☒ teflon bailer ☐ other _____
 dedicated purge equipment? ☒ yes ☐ no
 pumping rate _____ elapsed time _____
 bail volume _____ number of bails _____
 volume purged 7.5 gal well volumes 2.79
 time purge complete 1400 well evacuated? ☒ yes ☐ no

SAMPLING DATA ☐ pump ☐ PVC bailer ☐ poly bailer ☒ teflon bailer
☐ stainless bucket ☐ poly cup ☐ tedlar bag ☐ direct
☐ hand corer ☐ hand auger ☐ stainless spoon ☐ split spoon
☐ other _____
 dedicated sampling equipment? ☒ yes ☐ no
 metals field filtered? ☒ yes ☐ no
 depth of sample ~30
 sample containers see CDC

PHYSICAL AND CHEMICAL DATA

odor? ☐ no ☒ yes
 sediment? ☐ no ☐ yes NA
 color? ☐ no ☒ yes green
☐ clear ☒ turbid ☐ sheen ☐ immiscible product
☐ other _____

pH (SU) 5.27temp (C) 14.5cond (umhos) 16,000ORP (mV) 64.6

turb (NTU) _____

PID (ppm) /

comments / remarks _____



EMCON

FIELD SAMPLING DATA SHEET

sample ID W1G
 (lab) sample number #003 NEL
 project kin Buc DU1
 project number 12568.001.000

sample date/time 5/14/96 1235
 field personnel SI, GA, RB, BM
 observer _____

weather conditions (estimate wind, cloud, precip, humidity, temp)

clear, pleasant, 60's, sunny

SAMPLE TYPE

☐ composite ☒ grab
☒ groundwater ☐ surface water ☐ soil ☐ sediment
☐ leachate ☐ industrial ☐ storm sewer ☐ gas
☐ other _____

MONITORING WELL DATA

casing diameter 2" ☒ PVC ☐ steel ☐ other
 static water level 14.59 from ☒ well casing from ☐ protective casing
 bottom depth 20.30 from ☒ well casing from ☐ protective casing
 static water level indicator type ☐ steel tape ☒ electronic ☐ other
 linear conversion .164 water volume in well .94 gal
 well condition good

MONITORING WELL PURGE DATA

☐ submersible pump ☐ peristaltic pump ☐ suction pump ☐ PVC bailer
☐ poly bailer ☒ teflon bailer ☐ other _____
 dedicated purge equipment? ☒ yes ☐ no
 pumping rate _____ elapsed time _____
 bail volume _____ number of bails _____
 volume purged 3.0 gal well volumes 3.19
 time purge complete 11:45 well evacuated? ☐ yes ☒ no

SAMPLING DATA

☐ pump ☐ PVC bailer ☐ poly bailer ☒ teflon bailer
☐ stainless bucket ☐ poly cup ☐ tedlar bag ☐ direct
☐ hand corer ☐ hand auger ☐ stainless spoon ☐ split spoon
☐ other _____
 dedicated sampling equipment? ☒ yes ☐ no
 metals field filtered? ☒ yes ☐ no
 depth of sample ~18"
 sample containers see LOC

PHYSICAL AND CHEMICAL DATA

odor? ☐ no ☒ yes
 sediment? ☐ no ☐ yes NA
 color? ☒ no ☐ yes
☐ clear ☒ turbid ☐ sheen ☐ immiscible product
☐ other _____
 pH (SU) 6.97 temp (C) 13.2 cond (umhos) NA
 ORP (mV) -0.2 turb (NTU) _____ PID (ppm) 1.3 ppm.

comments / remarks

- not enough sample for cond - sampled dry
- FB-01 #001 → ref bailer → filter flask 1235



Emcon

FIELD SAMPLING DATA SHEET

sample ID W2G sample date/time 5/19/96 1240
 (lab) sample number # 002 NEI field personnel SI, GA, RB, BM
 project kin Buc OUI
 project number 12568.001.000 observer _____
 weather conditions (estimate wind, cloud, precip, humidity, temp) pleasant, 60's, sunny, clear

SAMPLE TYPE

☐ composite ☒ grab
☒ groundwater ☐ surface water ☐ soil ☐ sediment
☐ leachate ☐ industrial ☐ storm sewer ☐ gas
☐ other _____

MONITORING WELL DATA

casing diameter 2' ☒ PVC ☐ steel ☐ other
 static water level 14.86 from ☒ well casing from ☐ protective casing
 bottom depth 20.74 from ☒ well casing from ☐ protective casing
 static water level indicator type ☐ steel tape ☒ electronic ☐ other
 linear conversion .164 water volume in well 95 gal
 well condition good

MONITORING WELL PURGE DATA

☐ submersible pump ☐ peristaltic pump ☐ suction pump ☐ PVC bailer
☐ poly bailer ☒ teflon bailer ☐ other _____
 dedicated purge equipment? ☒ yes ☐ no
 pumping rate _____ elapsed time _____
 bail volume _____ number of bails _____
 volume purged 300 gal well volumes 3.16
 time purge complete 1136 well evacuated? ☐ yes ☒ no

SAMPLING DATA

☐ pump ☐ PVC bailer ☐ poly bailer ☒ teflon bailer
☐ stainless bucket ☐ poly cup ☐ tedlar bag ☐ direct
☐ hand corer ☐ hand auger ☐ stainless spoon ☐ split spoon
☐ other _____
 dedicated sampling equipment? ☒ yes ☐ no
 metals field filtered? ☒ yes ☐ no
 depth of sample ~18'
 sample containers see COC.

PHYSICAL AND CHEMICAL DATA

odor? ☐ no ☒ yes
 sediment? ☐ no ☐ yes NA
 color? ☒ no ☐ yes
☐ clear ☒ turbid ☐ sheen ☐ immiscible product
☐ other 6.64
 pH (SU) 6.64 temp (C) 12.9 cond (umhos) NA
 ORP (mV) 9.3 turb (NTU) _____ PID (ppm) .9

comments / remarks

- not enough sample for cond - sampled dry
- PB-01 #001 1235 -> to Humber, then to filter tank

500416



EMCON

FIELD SAMPLING DATA SHEET

| | | | |
|--------------------------------------|--|--|--|
| sample ID <u>W2R</u> | | sample date/time <u>5/14/96 1445</u> | |
| (lab) sample number <u># 010 NEI</u> | | field personnel <u>SI, GA, RB, BM</u> | |
| project <u>kin Buc OUI</u> | | observer _____ | |
| project number <u>12568.001.000</u> | | weather conditions (estimate wind, cloud, precip, humidity, temp) <u>clear, pleasant, sunny, 68's</u> | |

| | | | | |
|--------------------|---|--|--------------------------------------|-----------------------------------|
| SAMPLE TYPE | <input type="checkbox"/> composite | <input checked="" type="checkbox"/> grab | <input type="checkbox"/> soil | <input type="checkbox"/> sediment |
| | <input checked="" type="checkbox"/> groundwater | <input type="checkbox"/> surface water | <input type="checkbox"/> storm sewer | <input type="checkbox"/> gas |
| | <input type="checkbox"/> leachate | <input type="checkbox"/> industrial | | |
| | <input type="checkbox"/> other | | | |
| | | | | |

| | | | |
|---|--|---|--------------------------------|
| MONITORING WELL DATA | | | |
| casing diameter <u>24</u> | <input checked="" type="checkbox"/> PVC | <input type="checkbox"/> steel | <input type="checkbox"/> other |
| static water level <u>22.15</u> | from <input checked="" type="checkbox"/> well casing | from <input type="checkbox"/> protective casing | |
| bottom depth <u>35.08</u> | from <input checked="" type="checkbox"/> well casing | from <input type="checkbox"/> protective casing | |
| static water level indicator type <input type="checkbox"/> steel tape | | <input checked="" type="checkbox"/> electronic | <input type="checkbox"/> other |
| linear conversion <u>.164</u> | water volume in well <u>2.07 gal</u> | | |
| well condition <u>good</u> | | | |

| | | | |
|--|---|---------------------------------------|-------------------------------------|
| MONITORING WELL PURGE DATA | | | |
| <input type="checkbox"/> submersible pump | <input type="checkbox"/> peristaltic pump | <input type="checkbox"/> suction pump | <input type="checkbox"/> PVC bailer |
| <input type="checkbox"/> poly bailer | <input checked="" type="checkbox"/> teflon bailer | <input type="checkbox"/> other | |
| dedicated purge equipment? <input checked="" type="checkbox"/> yes | | <input type="checkbox"/> no | |
| pumping rate _____ | elapsed time _____ | | |
| bail volume _____ | number of bails _____ | | |
| volume purged <u>7.0 gallons</u> | well volumes <u>3.38</u> | | |
| time purge complete <u>1345</u> | well evacuated? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no | | |

| | | | |
|---|-------------------------------------|--|---|
| SAMPLING DATA | | | |
| <input type="checkbox"/> pump | <input type="checkbox"/> PVC bailer | <input type="checkbox"/> poly bailer | <input checked="" type="checkbox"/> teflon bailer |
| <input type="checkbox"/> stainless bucket | <input type="checkbox"/> poly cup | <input type="checkbox"/> tedlar bag | <input type="checkbox"/> direct |
| <input type="checkbox"/> hand corer | <input type="checkbox"/> hand auger | <input type="checkbox"/> stainless spoon | <input type="checkbox"/> split spoon |
| <input type="checkbox"/> other | | | |
| dedicated sampling equipment? <input checked="" type="checkbox"/> yes | | <input type="checkbox"/> no | |
| metals field filtered? <input checked="" type="checkbox"/> yes | | <input type="checkbox"/> no | |
| depth of sample <u>~23</u> | | | |
| sample containers <u>see CQC</u> | | | |

| | | | |
|--|--------------------------------|---|--|
| PHYSICAL AND CHEMICAL DATA | | | |
| odor? <input type="checkbox"/> no <input checked="" type="checkbox"/> yes | | | |
| sediment? <input type="checkbox"/> no <input type="checkbox"/> yes | <u>NA</u> | | |
| color? <input checked="" type="checkbox"/> no <input type="checkbox"/> yes | | | |
| <input type="checkbox"/> clear <input checked="" type="checkbox"/> turbid | <input type="checkbox"/> sheen | <input type="checkbox"/> immiscible product | |
| <input type="checkbox"/> other | | | |
| pH (SU) <u>5.20</u> | temp (C) <u>14.1</u> | cond (umhos) <u>12,000</u> | |
| ORP (mV) <u>89.6</u> | turb (NTU) _____ | PID (ppm) <u>9.3 in well</u> | |
| comments / remarks _____ | | | |



EMCON

FIELD SAMPLING DATA SHEET

| | | |
|-------------------------------------|---|--|
| sample ID <u>W3G</u> | sample date/time <u>5/14/96 1600</u> | |
| (lab) sample number <u>#015 NEF</u> | field personnel <u>SI, GA, RB, BM</u> | |
| project <u>kin Buc OUI</u> | observer _____ | |
| project number <u>12568.001.000</u> | weather conditions (estimate wind, cloud, precip, humidity, temp) <u>clear, warm, pleasant, 60's</u> | |

| | | | |
|--------------------|--|---|--|
| SAMPLE TYPE | <input type="checkbox"/> composite <input checked="" type="checkbox"/> groundwater <input type="checkbox"/> leachate <input type="checkbox"/> other | <input checked="" type="checkbox"/> grab <input type="checkbox"/> surface water <input type="checkbox"/> industrial | <input type="checkbox"/> soil <input type="checkbox"/> storm sewer <input type="checkbox"/> sediment <input type="checkbox"/> gas |
|--------------------|--|---|--|

| | | | |
|--------------------------------|---|--|--|
| MONITORING WELL DATA | | | |
| casing diameter <u>2"</u> | <input checked="" type="checkbox"/> PVC <input type="checkbox"/> steel <input type="checkbox"/> other | <input type="checkbox"/> from well casing <input type="checkbox"/> from protective casing | <input type="checkbox"/> from well casing <input type="checkbox"/> from protective casing |
| static water level <u>9.72</u> | static water level indicator type <input checked="" type="checkbox"/> steel tape | <input type="checkbox"/> electronic <input type="checkbox"/> other | |
| bottom depth <u>19.00</u> | linear conversion <u>.164</u> | water volume in well <u>1.48 gal.</u> | |
| well condition <u>good</u> | | | |

| | | | |
|---|--|---|-------------------------------------|
| MONITORING WELL PURGE DATA | | | |
| <input type="checkbox"/> submersible pump <input type="checkbox"/> poly bailer | <input type="checkbox"/> peristaltic pump <input checked="" type="checkbox"/> teflon bailer | <input type="checkbox"/> suction pump <input type="checkbox"/> other | <input type="checkbox"/> PVC bailer |
| dedicated purge equipment? <input checked="" type="checkbox"/> yes | | <input type="checkbox"/> no | |
| pumping rate _____ | elapsed time _____ | | |
| bail volume _____ | number of bails _____ | | |
| volume purged <u>5.00 gal</u> | well volumes <u>3.38</u> | | |
| time purge complete <u>1510</u> | well evacuated? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no | | |

| | | | |
|---|---|---|--|
| SAMPLING DATA | | | |
| <input type="checkbox"/> pump <input type="checkbox"/> stainless bucket <input type="checkbox"/> hand corer <input type="checkbox"/> other | <input type="checkbox"/> PVC bailer <input type="checkbox"/> poly cup <input type="checkbox"/> hand auger | <input type="checkbox"/> poly bailer <input type="checkbox"/> tedlar bag <input type="checkbox"/> stainless spoon | <input checked="" type="checkbox"/> teflon bailer <input type="checkbox"/> direct <input type="checkbox"/> split spoon |
| dedicated sampling equipment? <input checked="" type="checkbox"/> yes | | <input type="checkbox"/> no | |
| metals field filtered? <input checked="" type="checkbox"/> yes | | <input type="checkbox"/> no | |
| depth of sample <u>~12"</u> | | | |
| sample containers <u>see COC</u> | | | |

| | | | |
|---|---|--------------------------|--|
| PHYSICAL AND CHEMICAL DATA | | | |
| odor? <input type="checkbox"/> no <input checked="" type="checkbox"/> yes | | | |
| sediment? <input type="checkbox"/> no <input type="checkbox"/> yes | <u>NA</u> | | |
| color? <input type="checkbox"/> no <input checked="" type="checkbox"/> yes | <u>Black</u> | | |
| <input type="checkbox"/> clear <input checked="" type="checkbox"/> turbid <input type="checkbox"/> other | <input type="checkbox"/> sheen <input type="checkbox"/> immiscible product | | |
| pH (SU) <u>6.97</u> | temp (C) <u>13.2</u> | cond (umhos) <u>4450</u> | |
| ORP (mV) <u>-4.9</u> | turb (NTU) _____ | PID (ppm) <u>.2</u> | |
| comments / remarks <u>MS # 016</u> <u>MSD # 017</u> | | | |



EMCON

FIELD SAMPLING DATA SHEET

sample ID W3S sample date/time 5/14/96 1615
 (lab) sample number #018 NET field personnel SI, GA, RB, BM
 project kin Buc DII observer _____
 project number 12568.001.000
 weather conditions (estimate wind, cloud, precip, humidity, temp) clear, pleasant, 60's, sunny

SAMPLE TYPE

☐ composite ☒ grab
☒ groundwater ☐ surface water ☐ soil ☐ sediment
☐ leachate ☐ industrial ☐ storm sewer ☐ gas
☐ other _____

MONITORING WELL DATA

casing diameter 2" ☒ PVC ☐ steel ☐ other
 static water level 19.73 from ☒ well casing from ☐ protective casing
 bottom depth 31.28 from ☒ well casing from ☐ protective casing
 static water level indicator type ☐ steel tape ☒ electronic ☐ other
 linear conversion .164 water volume in well 1.84 gallons
 well condition good

MONITORING WELL PURGE DATA

☐ submersible pump ☐ peristaltic pump ☐ suction pump ☐ PVC bailer
☐ poly bailer ☒ teflon bailer ☐ other _____
 dedicated purge equipment? ☒ yes ☐ no
 pumping rate _____ elapsed time _____
 bail volume _____ number of bails _____
 volume purged 6.00 gal well volumes 3.26
 time purge complete 1530 well evacuated? ☐ yes ☒ no

SAMPLING DATA

☐ pump ☐ PVC bailer ☐ poly bailer ☒ teflon bailer
☐ stainless bucket ☐ poly cup ☐ tedlar bag ☐ direct
☐ hand corer ☐ hand auger ☐ stainless spoon ☐ split spoon
☐ other _____
 dedicated sampling equipment? ☒ yes ☐ no
 metals field filtered? ☒ yes ☐ no
 depth of sample ~22
 sample containers see cor

PHYSICAL AND CHEMICAL DATA

odor? ☐ no ☒ yes
 sediment? ☐ no ☐ yes NA
 color? ☒ no ☐ yes
☐ clear ☒ turbid ☐ sheen ☐ immiscible product
☐ other _____

pH (SU) 6.50 temp (C) 16.50 cond (umhos) 7600
 ORP (mV) 162 turb (NTU) _____ PID (ppm) .3 ppm

comments / remarks



Emcon

FIELD SAMPLING DATA SHEET

sample ID W3-R sample date/time 5/14/96 1545
 (lab) sample number #014 NEI field personnel SI, GA, RB, BM
 project kin BUC DU1 observer _____
 project number 12568.001.000
 weather conditions (estimate wind, cloud, precip, humidity, temp) Very pleasant, 60's, sunny

SAMPLE TYPE
☐ composite ☒ grab
☒ groundwater ☐ surface water ☐ soil ☐ sediment
☐ leachate ☐ industrial ☐ storm sewer ☐ gas
☐ other _____

MONITORING WELL DATA
 casing diameter 2" ☒ PVC ☐ steel ☐ other
 static water level 19.67 from ☒ well casing from ☐ protective casing
 bottom depth 53.46 from ☒ well casing from ☐ protective casing
 static water level indicator type ☐ steel tape ☒ electronic ☐ other
 linear conversion .164 water volume in well 5.41
 well condition good

MONITORING WELL PURGE DATA
☐ submersible pump ☐ peristaltic pump ☐ suction pump ☐ PVC bailer
☐ poly bailer ☒ teflon bailer ☐ other _____
 dedicated purge equipment? ☒ yes ☐ no
 pumping rate _____ elapsed time _____
 bail volume _____ number of bails _____
 volume purged 17.0 gal well volumes 3.14
 time purge complete 1455 well evacuated? ☐ yes ☒ no

SAMPLING DATA
☐ pump ☐ PVC bailer ☐ poly bailer ☒ teflon bailer
☐ stainless bucket ☐ poly cup ☐ tedlar bag ☐ direct
☐ hand corer ☐ hand auger ☐ stainless spoon ☐ split spoon
☐ other _____
 dedicated sampling equipment? ☒ yes ☐ no
 metals field filtered? ☒ yes ☐ no
 depth of sample ~22"
 sample containers see CAC

PHYSICAL AND CHEMICAL DATA
 odor? ☐ no ☒ yes
 sediment? ☐ no ☒ yes fine
 color? ☒ no ☐ yes
☒ clear ☐ turbid ☐ sheen ☐ immiscible product
☐ other _____
 pH (SU) 6.53 temp (C) 17.7 cond (umhos) 6000
 ORP (mV) 16.0 turb (NTU) _____ PID (ppm) 22.9 in well

comments / remarks _____

500420

**EMCON****FIELD SAMPLING DATA SHEET**

sample ID W4 G sample date/time 5/14/96 1316
 (lab) sample number #004 NEI field personnel SI, GA, RB, BM
 project kin Buc DU1
 project number 12568.001.000 observer _____
 weather conditions (estimate wind, cloud, precip, humidity, temp) clear, pleasant, 60's, sunny

SAMPLE TYPE

☐ composite ☒ grab
☒ groundwater ☐ surface water ☐ soil ☐ sediment
☐ leachate ☐ industrial ☐ storm sewer ☐ gas
☐ other _____

MONITORING WELL DATA

casing diameter 2" ☒ PVC ☐ steel ☐ other
 static water level 9.21 from ☒ well casing from ☐ protective casing
 bottom depth 17.37 from ☒ well casing from ☐ protective casing
 static water level indicator type ☐ steel tape ☒ electronic ☐ other
 linear conversion .164 water volume in well 1.33 gal
 well condition good

MONITORING WELL PURGE DATA

☐ submersible pump ☐ peristaltic pump ☐ suction pump ☐ PVC bailer
☐ poly bailer ☒ teflon bailer ☐ other _____
 dedicated purge equipment? ☒ yes ☐ no
 pumping rate _____ elapsed time _____
 bail volume _____ number of bails _____
 volume purged 2.0 gal well volumes 1.50
 time purge complete 12:07 well evacuated? ☒ yes ☐ no

SAMPLING DATA

☐ pump ☐ PVC bailer ☐ poly bailer ☒ teflon bailer
☐ stainless bucket ☐ poly cup ☐ tedlar bag ☐ direct
☐ hand corer ☐ hand auger ☐ stainless spoon ☐ split spoon
☐ other _____
 dedicated sampling equipment? ☒ yes ☐ no
 metals field filtered? ☒ yes ☐ no
 depth of sample ~ 15'
 sample containers see Cal.

PHYSICAL AND CHEMICAL DATA

odor? ☐ no ☒ yes
 sediment? ☐ no ☐ yes NA
 color? ☐ no ☒ yes Yellow / green
☒ clear ☐ turbid ☐ sheen ☐ immiscible product
☐ other _____

pH (SU) 7.40 temp (C) 13.9 cond (umhos) 4250
 ORP (mV) -34.9 turb (NTU) _____ PID (ppm) .4 ppm.

comments / remarks _____

500421



EMCON

FIELD SAMPLING DATA SHEET

sample ID W45 sample date/time 5/14/96 1500
 (lab) sample number NET #011 field personnel SI, GA, RB, BM
 project kin Buc Oil
 project number 12568.001.000 observer _____
 weather conditions (estimate wind, cloud, precip, humidity, temp) clear, pleasant, warming, 60's

SAMPLE TYPE ☐ composite ☒ grab
☒ groundwater ☐ surface water ☐ soil ☐ sediment
☐ leachate ☐ industrial ☐ storm sewer ☐ gas
☐ other _____

MONITORING WELL DATA

casing diameter 2" ☒ PVC ☐ steel ☐ other
 static water level 18.56 from ☒ well casing from ☐ protective casing
 bottom depth 31.34 from ☒ well casing from ☐ protective casing
 static water level indicator type ☐ steel tape ☒ electronic ☐ other
 linear conversion .164 water volume in well 2.04 gal.
 well condition Good

MONITORING WELL PURGE DATA

☐ submersible pump ☐ peristaltic pump ☐ suction pump ☐ PVC bailer
☐ poly bailer ☒ teflon bailer ☐ other _____
 dedicated purge equipment? ☒ yes ☐ no
 pumping rate _____ elapsed time _____
 bail volume _____ number of bails _____
 volume purged ~6 gal well volumes ~3
 time purge complete 1436 well evacuated? ☐ yes ☒ no

SAMPLING DATA

☐ pump ☐ PVC bailer ☐ poly bailer ☒ teflon bailer
☐ stainless bucket ☐ poly cup ☐ tedlar bag ☐ direct
☐ hand corer ☐ hand auger ☐ stainless spoon ☐ split spoon
☐ other _____
 dedicated sampling equipment? ☒ yes ☐ no
 metals field filtered? ☒ yes ☐ no
 depth of sample ~2'
 sample containers See GC.

PHYSICAL AND CHEMICAL DATA

odor? ☐ no ☒ yes
 sediment? ☐ no ☐ yes NA
 color? ☒ no ☐ yes
☐ clear ☒ turbid ☒ sheen ☐ immiscible product
☐ other _____
 pH (SU) 6.67 temp (C) 15.9 cond (umhos) 6000
 ORP (mV) 13.5 turb (NTU) _____ PID (ppm) .80

comments / remarks

DUP performed #012



EMCON

FIELD SAMPLING DATA SHEET

| | |
|--|--|
| sample ID <u>W4-R</u> (lab) sample number <u>NEI# 013</u> project <u>kin Buc 001</u> project number <u>12568.001.000</u> weather conditions (estimate wind, cloud, precip, humidity, temp) <u>clear, pleasant, warm, 60's</u> | sample date/time <u>5/14/96</u> <u>1535</u> field personnel <u>SI, GA, RB, BM</u> observer _____ |
|--|--|

| | | | |
|--|---|---|---|
| SAMPLE TYPE <input type="checkbox"/> composite <input checked="" type="checkbox"/> groundwater <input type="checkbox"/> leachate <input type="checkbox"/> other | <input checked="" type="checkbox"/> grab <input type="checkbox"/> surface water <input type="checkbox"/> industrial | <input type="checkbox"/> soil <input type="checkbox"/> storm sewer | <input type="checkbox"/> sediment <input type="checkbox"/> gas |
|--|---|---|---|

| | | | |
|---------------------------------|---|---|---|
| MONITORING WELL DATA | | | |
| casing diameter <u>2"</u> | <input checked="" type="checkbox"/> PVC from <input checked="" type="checkbox"/> well casing | <input type="checkbox"/> steel from <input type="checkbox"/> protective casing | <input type="checkbox"/> other from <input type="checkbox"/> protective casing |
| static water level <u>18.60</u> | bottom depth <u>54.87</u> | static water level indicator type <input type="checkbox"/> steel tape <input checked="" type="checkbox"/> electronic <input type="checkbox"/> other | |
| linear conversion <u>.164</u> | water volume in well <u>5.80 gal</u> | | |
| well condition <u>Good</u> | | | |

| | | | |
|--|---|---|-------------------------------------|
| MONITORING WELL PURGE DATA | | | |
| <input type="checkbox"/> submersible pump <input type="checkbox"/> poly bailer | <input type="checkbox"/> peristaltic pump <input type="checkbox"/> teflon bailer | <input checked="" type="checkbox"/> suction pump <input type="checkbox"/> other | <input type="checkbox"/> PVC bailer |
| dedicated purge equipment? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no | | elapsed time _____ | |
| pumping rate _____ | | number of bails _____ | |
| bail volume _____ | | well volumes <u>3.10</u> | |
| volume purged <u>18.00</u> | | well evacuated? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no | |
| time purge complete <u>1430</u> | | | |

| | | | |
|---|---|---|--|
| SAMPLING DATA | | | |
| <input type="checkbox"/> pump <input type="checkbox"/> stainless bucket <input type="checkbox"/> hand corer <input type="checkbox"/> other | <input type="checkbox"/> PVC bailer <input type="checkbox"/> poly cup <input type="checkbox"/> hand auger | <input type="checkbox"/> poly bailer <input type="checkbox"/> tedlar bag <input type="checkbox"/> stainless spoon | <input checked="" type="checkbox"/> teflon bailer <input type="checkbox"/> direct <input type="checkbox"/> split spoon |
| dedicated sampling equipment? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no | | metals field filtered? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no | |
| depth of sample <u>~21'</u> | | | |
| sample containers <u>see coc</u> | | | |

| | | | |
|--|---|--------------------------------|---|
| PHYSICAL AND CHEMICAL DATA | | | |
| odor? <input type="checkbox"/> no <input checked="" type="checkbox"/> yes | sediment? <input type="checkbox"/> no <input checked="" type="checkbox"/> yes | <u>tan</u> | |
| color? <input checked="" type="checkbox"/> no <input type="checkbox"/> yes | <input checked="" type="checkbox"/> clear <input type="checkbox"/> turbid | <input type="checkbox"/> sheen | <input type="checkbox"/> immiscible product |
| <input checked="" type="checkbox"/> other <u>cloudy</u> | | | |
| pH (SU) <u>6.55</u> | temp (C) <u>17.0</u> | cond (umhos) <u>7000</u> | PID (ppm) <u>2.8</u> |
| ORP (mV) <u>14.3</u> | turb (NTU) _____ | | |
| comments / remarks | | | |

500423



EMCON

FIELD SAMPLING DATA SHEET

sample ID U5G sample date/time 5/15/96 0945
 (lab) sample number 4021 NEI field personnel SI, GA, RB, BM
 project kin BOC DUL observer _____
 project number 12568.001.000
 weather conditions (estimate wind, cloud, precip, humidity, temp) clear, cool, 50-60's

SAMPLE TYPE

☐ composite ☒ grab
☒ groundwater ☐ surface water ☐ soil ☐ sediment
☐ leachate ☐ industrial ☐ storm sewer ☐ gas
☐ other

MONITORING WELL DATA

casing diameter 2" ☒ PVC ☐ steel ☐ other
 static water level 12.76' from ☒ well casing from ☐ protective casing
 bottom depth 24.22' from ☒ well casing from ☐ protective casing
 static water level indicator type ☐ steel tape ☒ electronic ☐ other
 linear conversion .164 water volume in well 1.83 gal
 well condition good

MONITORING WELL PURGE DATA

☐ submersible pump ☐ peristaltic pump ☐ suction pump ☐ PVC bailer
☐ poly bailer ☒ teflon bailer ☐ other
 dedicated purge equipment? ☒ yes ☐ no
 pumping rate _____ elapsed time _____
 bail volume _____ number of bails _____
 volume purged 4 gal well volumes 2.19
 time purge complete 0925 well evacuated? ☐ yes ☒ no

SAMPLING DATA

☐ pump ☐ PVC bailer ☐ poly bailer ☒ teflon bailer
☐ stainless bucket ☐ poly cup ☐ tedlar bag ☐ direct
☐ hand corer ☐ hand auger ☐ stainless spoon ☐ split spoon
☐ other
 dedicated sampling equipment? ☒ yes ☐ no
 metals field filtered? ☒ yes ☐ no
 depth of sample ~15'
 sample containers see CCL

PHYSICAL AND CHEMICAL DATA

odor? ☐ no ☒ yes
 sediment? ☐ no ☐ yes NA
 color? ☐ no ☒ yes Black
☐ clear ☒ turbid ☒ sheen ☐ immiscible product
☐ other
 pH (SU) 6.78 temp (C) 13.9 cond (umhos) 2.000
 ORP (mV) -1.1 turb (NTU) _____ PID (ppm) _____

comments / remarks

500424



EMCON

FIELD SAMPLING DATA SHEET

| | | | |
|-------------------------------------|--|--|--|
| sample ID <u>W55</u> | | sample date/time <u>5/15/96</u> <u>0930</u> | |
| (lab) sample number <u>#020 NET</u> | | field personnel <u>SI, GA, RB, BM</u> | |
| project <u>kin Buc Oil</u> | | observer _____ | |
| project number <u>12568.001.000</u> | | weather conditions (estimate wind, cloud, precip, humidity, temp) <u>clear, cool, 50-60's</u> | |

| | | | |
|---|--|--|-----------------------------------|
| SAMPLE TYPE | | | |
| <input type="checkbox"/> composite | <input checked="" type="checkbox"/> grab | <input type="checkbox"/> surface water | <input type="checkbox"/> soil |
| <input checked="" type="checkbox"/> groundwater | <input type="checkbox"/> industrial | <input type="checkbox"/> storm sewer | <input type="checkbox"/> sediment |
| <input type="checkbox"/> leachate | <input type="checkbox"/> other | | <input type="checkbox"/> gas |

| | | | |
|---|--|---|--------------------------------|
| MONITORING WELL DATA | | | |
| casing diameter <u>2"</u> | <input checked="" type="checkbox"/> PVC | <input type="checkbox"/> steel | <input type="checkbox"/> other |
| static water level <u>22.72</u> | from <input checked="" type="checkbox"/> well casing | from <input type="checkbox"/> protective casing | |
| bottom depth <u>29.97</u> | from <input checked="" type="checkbox"/> well casing | from <input type="checkbox"/> protective casing | |
| static water level indicator type <input type="checkbox"/> steel tape | <input checked="" type="checkbox"/> electronic | <input type="checkbox"/> other | |
| linear conversion <u>.164</u> | water volume in well <u>1.16 gal</u> | | |
| well condition <u>Good</u> | | | |

| | | | |
|--|---|---------------------------------------|-------------------------------------|
| MONITORING WELL PURGE DATA | | | |
| <input type="checkbox"/> submersible pump | <input type="checkbox"/> peristaltic pump | <input type="checkbox"/> suction pump | <input type="checkbox"/> PVC bailer |
| <input type="checkbox"/> poly bailer | <input checked="" type="checkbox"/> teflon bailer | <input type="checkbox"/> other | |
| dedicated purge equipment? <input checked="" type="checkbox"/> yes | | <input type="checkbox"/> no | |
| pumping rate _____ | elapsed time _____ | | |
| bail volume _____ | number of bails _____ | | |
| volume purged <u>2.9 gal</u> | well volumes <u>1.72</u> | | |
| time purge complete <u>0940</u> | well evacuated? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no | | |

| | | | |
|---|-------------------------------------|--|---|
| SAMPLING DATA | | | |
| <input type="checkbox"/> pump | <input type="checkbox"/> PVC bailer | <input type="checkbox"/> poly bailer | <input checked="" type="checkbox"/> teflon bailer |
| <input type="checkbox"/> stainless bucket | <input type="checkbox"/> poly cup | <input type="checkbox"/> tedlar bag | <input type="checkbox"/> direct |
| <input type="checkbox"/> hand corer | <input type="checkbox"/> hand auger | <input type="checkbox"/> stainless spoon | <input type="checkbox"/> split spoon |
| <input type="checkbox"/> other | | | |
| dedicated sampling equipment? <input checked="" type="checkbox"/> yes | | <input type="checkbox"/> no | |
| metals field filtered? <input checked="" type="checkbox"/> yes | | <input type="checkbox"/> no | |
| depth of sample <u>~20</u> | | | |
| sample containers <u>see CCC</u> | | | |

| | | | |
|---|--------------------------------|---|--|
| PHYSICAL AND CHEMICAL DATA | | | |
| odor? <input type="checkbox"/> no <input checked="" type="checkbox"/> yes | | | |
| sediment? <input type="checkbox"/> no <input checked="" type="checkbox"/> yes | <u>Brown/Gray</u> | | |
| color? <input checked="" type="checkbox"/> no <input type="checkbox"/> yes | | | |
| <input checked="" type="checkbox"/> clear <input type="checkbox"/> turbid | <input type="checkbox"/> sheen | <input type="checkbox"/> immiscible product | |
| <input type="checkbox"/> other | | | |
| pH (SU) <u>10.49</u> | temp (C) <u>16.4</u> | cond (umhos) <u>19,000</u> | |
| ORP (mV) <u>-211.7</u> | turb (NTU) _____ | PID (ppm) _____ | |
| comments / remarks _____ | | | |

**EMCON****FIELD SAMPLING DATA SHEET**

| | | | |
|--|--|---|--|
| sample ID <u>WSR</u> | | sample date/time <u>5/14/76</u> <u>1635</u> | |
| (lab) sample number <u>#019 NET</u> | | field personnel <u>SI, GA, RB, BM</u> | |
| project <u>kin BOC DU1</u> | | observer _____ | |
| project number <u>12568.001.000</u> | | | |
| weather conditions (estimate wind, cloud, precip, humidity, temp) <u>clear, pleasant, 60's, & sunny</u> | | | |

| | | | |
|---|--|--------------------------------------|-----------------------------------|
| SAMPLE TYPE | | | |
| <input type="checkbox"/> composite | <input checked="" type="checkbox"/> grab | <input type="checkbox"/> soil | <input type="checkbox"/> sediment |
| <input checked="" type="checkbox"/> groundwater | <input type="checkbox"/> surface water | <input type="checkbox"/> storm sewer | <input type="checkbox"/> gas |
| <input type="checkbox"/> leachate | <input type="checkbox"/> industrial | | |
| <input type="checkbox"/> other | | | |

| | | | |
|---|--|---|--------------------------------|
| MONITORING WELL DATA | | | |
| casing diameter <u>2"</u> | <input checked="" type="checkbox"/> PVC | <input type="checkbox"/> steel | <input type="checkbox"/> other |
| static water level <u>22.76</u> | from <input checked="" type="checkbox"/> well casing | from <input type="checkbox"/> protective casing | |
| bottom depth <u>41.42</u> | from <input checked="" type="checkbox"/> well casing | from <input type="checkbox"/> protective casing | |
| static water level indicator type <input type="checkbox"/> steel tape | <input checked="" type="checkbox"/> electronic | <input type="checkbox"/> other | |
| linear conversion <u>164</u> | water volume in well <u>2.99 gal</u> | | |
| well condition <u>Good</u> | | | |

| | | | |
|--|---|---------------------------------------|-------------------------------------|
| MONITORING WELL PURGE DATA | | | |
| <input type="checkbox"/> submersible pump | <input type="checkbox"/> peristaltic pump | <input type="checkbox"/> suction pump | <input type="checkbox"/> PVC bailer |
| <input type="checkbox"/> poly bailer | <input checked="" type="checkbox"/> teflon bailer | <input type="checkbox"/> other | |
| dedicated purge equipment? <input checked="" type="checkbox"/> yes | | <input type="checkbox"/> no | |
| pumping rate _____ | elapsed time _____ | | |
| bail volume _____ | number of bails _____ | | |
| volume purged <u>10 gal.</u> | well volumes <u>3.34</u> | | |
| time purge complete <u>1600</u> | well evacuated? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no | | |

| | | | |
|---|-------------------------------------|--|---|
| SAMPLING DATA | | | |
| <input type="checkbox"/> pump | <input type="checkbox"/> PVC bailer | <input type="checkbox"/> poly bailer | <input checked="" type="checkbox"/> teflon bailer |
| <input type="checkbox"/> stainless bucket | <input type="checkbox"/> poly cup | <input type="checkbox"/> tedlar bag | <input type="checkbox"/> direct |
| <input type="checkbox"/> hand corer | <input type="checkbox"/> hand auger | <input type="checkbox"/> stainless spoon | <input type="checkbox"/> split spoon |
| <input type="checkbox"/> other | | | |
| dedicated sampling equipment? <input checked="" type="checkbox"/> yes | | <input type="checkbox"/> no | |
| metals field filtered? <input checked="" type="checkbox"/> yes | | <input type="checkbox"/> no | |
| depth of sample <u>~25</u> | | | |
| sample containers <u>see COC</u> | | | |

| | | | |
|---|--------------------------------|---|--|
| PHYSICAL AND CHEMICAL DATA | | | |
| odor? <input type="checkbox"/> no <input checked="" type="checkbox"/> yes | <u>slight</u> | | |
| sediment? <input type="checkbox"/> no <input checked="" type="checkbox"/> yes | <u>grey sediment</u> | | |
| color? <input checked="" type="checkbox"/> no <input type="checkbox"/> yes | | | |
| <input type="checkbox"/> clear <input checked="" type="checkbox"/> turbid | <input type="checkbox"/> sheen | <input type="checkbox"/> immiscible product | |
| <input type="checkbox"/> other | | | |
| pH (SU) <u>7.09</u> | temp (C) <u>16.2</u> | cond (umhos) <u>17000</u> | |
| ORP (mV) <u>-22.8</u> | turb (NTU) _____ | PID (ppm) _____ | |
| comments / remarks _____ | | | |
| _____ | | | |
| _____ | | | |

500426

**EMCON****FIELD SAMPLING DATA SHEET**

sample ID W6G sample date/time 5/15/96 1015
 (lab) sample number MEI #23 field personnel SI, GA, RB, BM
 project kin Buc 041
 project number 12568.001.000 observer _____
 weather conditions (estimate wind, cloud, precip, humidity, temp)

Sunny, partly cloudy no precip 70°**SAMPLE TYPE**

☐ composite ☒ grab
☒ groundwater ☐ surface water ☐ soil ☐ sediment
☐ leachate ☐ industrial ☐ storm sewer ☐ gas
☐ other _____

MONITORING WELL DATA

casing diameter 2" ☒ PVC ☐ steel ☐ other
 static water level 11.94 from ☒ well casing from ☐ protective casing
 bottom depth 23.78 from ☒ well casing from ☐ protective casing
 static water level indicator type ☐ steel tape ☒ electronic ☐ other
 linear conversion 1164 water volume in well 1.89 gal
 well condition good

MONITORING WELL PURGE DATA

☐ submersible pump ☐ peristaltic pump ☐ suction pump ☐ PVC bailer
☐ poly bailer ☒ teflon bailer ☐ other _____
 dedicated purge equipment? ☒ yes ☐ no
 pumping rate _____ elapsed time _____
 bail volume _____ number of bails _____
 volume purged 4.00 well volumes 2 12
 time purge complete 9/10 well evacuated? ☐ yes ☒ no

SAMPLING DATA

☐ pump ☐ PVC bailer ☐ poly bailer ☒ teflon bailer
☐ stainless bucket ☐ poly cup ☐ tedlar bag ☐ direct
☐ hand corer ☐ hand auger ☐ stainless spoon ☐ split spoon
☐ other _____
 dedicated sampling equipment? ☒ yes ☐ no
 metals field filtered? ☒ yes ☐ no
 depth of sample ~15'
 sample containers see lab

PHYSICAL AND CHEMICAL DATA

odor? ☐ no ☒ yes
 sediment? ☐ no ☒ yes grey
 color? ☒ no ☐ yes
☐ clear ☒ turbid ☒ sheen ☐ immiscible product
☐ other _____
 pH (SU) 6.39 temp (C) 14.6 cond (umhos) 1100
 ORP (mV) 21.8 turb (NTU) _____ PID (ppm) Ø

comments / remarks

500427



EMCON

FIELD SAMPLING DATA SHEET

| | |
|--|--|
| sample ID <u>W65</u> (lab) sample number <u>#022 NEF</u> project <u>kin BOC OUI</u> project number <u>2568.001.000</u> weather conditions (estimate wind, cloud, precip, humidity, temp) <u>clear, cool, 58-68's</u> | sample date/time <u>5/15/96</u> <u>0950</u> field personnel <u>SI, GA, RB, BM</u> observer _____ |
|--|--|

| | | | | |
|--------------------|--|---|---|---|
| SAMPLE TYPE | <input type="checkbox"/> composite <input checked="" type="checkbox"/> groundwater <input type="checkbox"/> leachate <input type="checkbox"/> other | <input checked="" type="checkbox"/> grab <input type="checkbox"/> surface water <input type="checkbox"/> industrial | <input type="checkbox"/> soil <input type="checkbox"/> storm sewer | <input type="checkbox"/> sediment <input type="checkbox"/> gas |
|--------------------|--|---|---|---|

| | | | |
|-------------------------------|---|---|---|
| MONITORING WELL DATA | | | |
| casing diameter <u>2 inch</u> | <input checked="" type="checkbox"/> PVC <input type="checkbox"/> steel <input type="checkbox"/> other | static water level <u>22.48</u> | from <input checked="" type="checkbox"/> well casing from <input type="checkbox"/> protective casing |
| bottom depth <u>38.27</u> | from <input checked="" type="checkbox"/> well casing from <input type="checkbox"/> protective casing | static water level indicator type <input type="checkbox"/> steel tape | <input checked="" type="checkbox"/> electronic <input type="checkbox"/> other |
| linear conversion <u>0.16</u> | water volume in well <u>2.53</u> | | |
| well condition _____ | | | |

| | | | |
|---|--|---|-------------------------------------|
| MONITORING WELL PURGE DATA | | | |
| <input type="checkbox"/> submersible pump <input type="checkbox"/> poly bailer | <input type="checkbox"/> peristaltic pump <input checked="" type="checkbox"/> teflon bailer | <input type="checkbox"/> suction pump <input type="checkbox"/> other | <input type="checkbox"/> PVC bailer |
| dedicated purge equipment? <input checked="" type="checkbox"/> yes | | <input type="checkbox"/> no | |
| pumping rate _____ | elapsed time _____ | | |
| bail volume _____ | number of bails _____ | | |
| volume purged <u>8.0 gal</u> | well volumes <u>3.16</u> | | |
| time purge complete <u>0925</u> | well evacuated? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no | | |

| | | | |
|---|---|---|--|
| SAMPLING DATA | | | |
| <input type="checkbox"/> pump <input type="checkbox"/> stainless bucket <input type="checkbox"/> hand corer <input type="checkbox"/> other | <input type="checkbox"/> PVC bailer <input type="checkbox"/> poly cup <input type="checkbox"/> hand auger | <input type="checkbox"/> poly bailer <input type="checkbox"/> tedlar bag <input type="checkbox"/> stainless spoon | <input checked="" type="checkbox"/> teflon bailer <input type="checkbox"/> direct <input type="checkbox"/> split spoon |
| dedicated sampling equipment? <input checked="" type="checkbox"/> yes | | <input type="checkbox"/> no | |
| metals field filtered? <input checked="" type="checkbox"/> yes | | <input type="checkbox"/> no | |
| depth of sample <u>~24</u> | | | |
| sample containers <u>See Coc</u> | | | |

| | | | |
|---|--|---|--|
| PHYSICAL AND CHEMICAL DATA | | | |
| odor? <input type="checkbox"/> no | <input checked="" type="checkbox"/> yes <input type="checkbox"/> yes | | |
| sediment? <input type="checkbox"/> no | <input checked="" type="checkbox"/> yes <input type="checkbox"/> yes | <u>grey</u> | |
| color? <input checked="" type="checkbox"/> no | <input type="checkbox"/> yes <input type="checkbox"/> clear <input checked="" type="checkbox"/> turbid | <input type="checkbox"/> sheen <input type="checkbox"/> immiscible product | |
| pH (SU) <u>7.21</u> | temp (C) <u>16.2</u> | cond (umhos) <u>10,500</u> | |
| ORP (mV) <u>-33.9</u> | turb (NTU) _____ | PID (ppm) <u>2 ppm</u> | |
| comments / remarks _____ | | | |

500428

**EMCON****FIELD SAMPLING DATA SHEET**

sample ID WGR sample date/time 5/15/96 1035
 (lab) sample number #024 NET field personnel SI, GA, RB, BM
 project kin Buc 041
 project number 12568.001.000 observer _____
 weather conditions (estimate wind, cloud, precip, humidity, temp) clear, cool, 50-60's

SAMPLE TYPE
☐ composite ☒ grab
☒ groundwater ☐ surface water ☐ soil ☐ sediment
☐ leachate ☐ industrial ☐ storm sewer ☐ gas
☐ other _____

MONITORING WELL DATA
 casing diameter 2" ☒ PVC ☐ steel ☐ other
 static water level 22.58 from ☒ well casing from ☐ protective casing
 bottom depth 50.21 from ☒ well casing from ☐ protective casing
 static water level indicator type ☐ steel tape ☒ electronic ☐ other
 linear conversion .164 water volume in well 4.42 gal
 well condition Bailer stuck in well

MONITORING WELL PURGE DATA
☐ submersible pump ☒ peristaltic pump ☐ suction pump ☐ PVC bailer
☐ poly bailer ☐ teflon bailer ☐ other _____
 dedicated purge equipment? ☒ yes ☐ no
 pumping rate _____ elapsed time _____
 bail volume _____ number of bails _____
 volume purged 7.5 gal well volumes 1.70
 time purge complete 1020 well evacuated? ☐ yes ☒ no

SAMPLING DATA
☐ pump ☐ PVC bailer ☐ poly bailer ☐ teflon bailer
☐ stainless bucket ☐ poly cup ☐ tedlar bag ☐ direct
☐ hand corer ☐ hand auger ☐ stainless spoon ☐ split spoon
☒ other Peristaltic
 dedicated sampling equipment? ☒ yes ☐ no
 metals field filtered? ☒ yes ☐ no
 depth of sample ~30
 sample containers see Col

PHYSICAL AND CHEMICAL DATA

odor? ☐ no ☒ yes
 sediment? ☐ no ☒ yes Brown
 color? ☒ no ☐ yes
☒ clear ☐ turbid ☐ sheen ☐ immiscible product
☐ other _____
 pH (SU) 6.66 temp (C) 18.1 cond (umhos) 12,000
 ORP (mV) 6.2 turb (NTU) _____ PID (ppm) 0
 comments / remarks rope broken & bailer remains in well at (hand, joint, crack)? near 30



EMCON

FIELD SAMPLING DATA SHEET

sample ID W7G sample date/time 5/15/96 1300
 (lab) sample number #037 NEF field personnel SI, GA, RB, BM
 project kin BUC OUI observer _____
 project number 12568.001.000
 weather conditions (estimate wind, cloud, precip, humidity, temp) clear, cool, 50-60's

SAMPLE TYPE
☐ composite ☒ grab
☒ groundwater ☐ surface water ☐ soil ☐ sediment
☐ leachate ☐ industrial ☐ storm sewer ☐ gas
☐ other _____

MONITORING WELL DATA
 casing diameter 2 inch ☒ PVC ☐ steel ☐ other
 static water level 6.56 from ☒ well casing from ☐ protective casing
 bottom depth 19.91 from ☒ well casing from ☐ protective casing
 static water level indicator type ☐ steel tape ☒ electronic ☐ other
 linear conversion .164 water volume in well 2.14
 well condition good

MONITORING WELL PURGE DATA
☐ submersible pump ☐ peristaltic pump ☐ suction pump ☐ PVC bailer
☐ poly bailer ☒ teflon bailer ☐ other _____
 dedicated purge equipment? ☒ yes ☐ no
 pumping rate _____ elapsed time _____
 bail volume _____ number of bails _____
 volume purged _____ well volumes _____
 time purge complete _____ well evacuated? ☐ yes ☐ no

SAMPLING DATA
☐ pump ☐ PVC bailer ☐ poly bailer ☒ teflon bailer
☐ stainless bucket ☐ poly cup ☐ tedlar bag ☐ direct
☐ hand corer ☐ hand auger ☐ stainless spoon ☐ split spoon
☐ other _____
 dedicated sampling equipment? ☒ yes ☐ no
 metals field filtered? ☒ yes ☐ no
 depth of sample ~8'
 sample containers see COL

PHYSICAL AND CHEMICAL DATA

odor? ☐ no ☒ yes
 sediment? ☐ no ☐ yes NA
 color? ☐ no ☒ yes Black, od sheen
☐ clear ☒ turbid ☒ sheen ☐ immiscible product
☐ other _____

pH (SU) 6.90 temp (C) 13.2 cond (umhos) 5300
 ORP (mV) -7.0 turb (NTU) _____ PID (ppm) _____

comments / remarks _____

500430



EMCON

FIELD SAMPLING DATA SHEET

| | | | |
|--|---------------------------------------|--|--|
| sample ID <u>W7S</u> | sample date/time <u>5/15/96 1130</u> | | |
| (lab) sample number <u>#027 NEI</u> | field personnel <u>SI, GA, RB, BM</u> | | |
| project <u>kin Buc OU1</u> | observer _____ | | |
| project number <u>12568.001.000</u> | | | |
| weather conditions (estimate wind, cloud, precip, humidity, temp) <u>clear, cool, 50-60's</u> | | | |

| | | | | | |
|--------------------|---|--|--------------------------------------|-----------------------------------|--|
| SAMPLE TYPE | <input type="checkbox"/> composite | <input checked="" type="checkbox"/> grab | | | |
| | <input checked="" type="checkbox"/> groundwater | <input type="checkbox"/> surface water | <input type="checkbox"/> soil | <input type="checkbox"/> sediment | |
| | <input type="checkbox"/> leachate | <input type="checkbox"/> industrial | <input type="checkbox"/> storm sewer | <input type="checkbox"/> gas | |
| | <input type="checkbox"/> other _____ | | | | |

| | | | | | |
|---|--|---|--------------------------------|--|--|
| MONITORING WELL DATA | | | | | |
| casing diameter <u>2"</u> | <input checked="" type="checkbox"/> PVC | <input type="checkbox"/> steel | <input type="checkbox"/> other | | |
| static water level <u>10.05</u> | from <input checked="" type="checkbox"/> well casing | from <input type="checkbox"/> protective casing | | | |
| bottom depth <u>28.96</u> | from <input checked="" type="checkbox"/> well casing | from <input type="checkbox"/> protective casing | | | |
| static water level indicator type <input type="checkbox"/> steel tape | <input checked="" type="checkbox"/> electronic | <input type="checkbox"/> other | | | |
| linear conversion <u>.164</u> | water volume in well <u>3.02 gal</u> | | | | |
| well condition <u>good</u> | | | | | |

| | | | | | |
|--|---|---------------------------------------|--|--|--|
| MONITORING WELL PURGE DATA | | | | | |
| <input type="checkbox"/> submersible pump | <input type="checkbox"/> peristaltic pump | <input type="checkbox"/> suction pump | <input type="checkbox"/> PVC bailer | | |
| <input type="checkbox"/> poly bailer | <input checked="" type="checkbox"/> teflon bailer | <input type="checkbox"/> other _____ | | | |
| dedicated purge equipment? <input checked="" type="checkbox"/> yes | | <input type="checkbox"/> no | | | |
| pumping rate _____ | elapsed time _____ | | | | |
| bail volume _____ | number of bails _____ | | | | |
| volume purged <u>10 gal</u> | well volumes <u>3.31</u> | | | | |
| time purge complete <u>1030</u> | well evacuated? <input type="checkbox"/> yes | | <input checked="" type="checkbox"/> no | | |

| | | | | | |
|---|-------------------------------------|--|---|--|--|
| SAMPLING DATA | | | | | |
| <input type="checkbox"/> pump | <input type="checkbox"/> PVC bailer | <input type="checkbox"/> poly bailer | <input checked="" type="checkbox"/> teflon bailer | | |
| <input type="checkbox"/> stainless bucket | <input type="checkbox"/> poly cup | <input type="checkbox"/> tedlar bag | <input type="checkbox"/> direct | | |
| <input type="checkbox"/> hand corer | <input type="checkbox"/> hand auger | <input type="checkbox"/> stainless spoon | <input type="checkbox"/> split spoon | | |
| <input type="checkbox"/> other _____ | | | | | |
| dedicated sampling equipment? <input checked="" type="checkbox"/> yes | | <input type="checkbox"/> no | | | |
| metals field filtered? <input checked="" type="checkbox"/> yes | | <input type="checkbox"/> no | | | |
| depth of sample <u>~12'</u> | | | | | |
| sample containers <u>see C.C.</u> | | | | | |

| | | | | | |
|---|--|--------------------------------|---|--|--|
| PHYSICAL AND CHEMICAL DATA | | | | | |
| odor? <input type="checkbox"/> no | <input checked="" type="checkbox"/> yes | | | | |
| sediment? <input type="checkbox"/> no | <input type="checkbox"/> yes | <u>NA</u> | | | |
| color? <input checked="" type="checkbox"/> no | <input type="checkbox"/> yes | | | | |
| <input type="checkbox"/> clear | <input checked="" type="checkbox"/> turbid | <input type="checkbox"/> sheen | <input type="checkbox"/> immiscible product | | |
| <input type="checkbox"/> other _____ | | | | | |
| pH (SU) <u>7.24</u> | temp (C) <u>13.1</u> | cond (umhos) <u>10,500</u> | | | |
| ORP (mV) <u>-12.7</u> | turb (NTU) _____ | PID (ppm) _____ | | | |
| comments / remarks <u>MS #028</u> | | | | | |
| <u>FB-02 @ 1100 #025</u> | | | | | |
| <u>MSD #029</u> | | | | | |



EMCON

FIELD SAMPLING DATA SHEET

sample ID W7R sample date/time 5/15/96 1220
 (lab) sample number NEI #035 field personnel SI, GA, RB, BM
 project kin Buc 001
 project number 12568.001.000 observer _____
 weather conditions (estimate wind, cloud, precip, humidity, temp) clear, cool, 40-60's

SAMPLE TYPE ☐ composite ☒ grab
☒ groundwater ☐ surface water ☐ soil ☐ sediment
☐ leachate ☐ industrial ☐ storm sewer ☐ gas
☐ other _____

MONITORING WELL DATA

casing diameter 2" ☒ PVC ☐ steel ☐ other
 static water level 9.43 from ☒ well casing from ☐ protective casing
 bottom depth 45.04 from ☒ well casing from ☐ protective casing
 static water level indicator type ☐ steel tape ☒ electronic ☐ other
 linear conversion .164 water volume in well 5.70 gal
 well condition good.

MONITORING WELL PURGE DATA

☒ submersible pump ☐ peristaltic pump ☐ suction pump ☐ PVC bailer
☐ poly bailer ☒ teflon bailer ☐ other _____
 dedicated purge equipment? ☒ yes ☐ no
 pumping rate _____ elapsed time _____
 bail volume _____ number of bails _____
 volume purged 6 gal well volumes 1.05
 time purge complete 1035 well evacuated? ☒ yes ☐ no

SAMPLING DATA

☐ pump ☐ PVC bailer ☐ poly bailer ☒ teflon bailer
☐ stainless bucket ☐ poly cup ☐ tedlar bag ☐ direct
☐ hand corer ☐ hand auger ☐ stainless spoon ☐ split spoon
☐ other _____
 dedicated sampling equipment? ☒ yes ☐ no
 metals field filtered? ☒ yes ☐ no
 depth of sample ~40
 sample containers see coc

PHYSICAL AND CHEMICAL DATA

odor? ☐ no ☒ yes
 sediment? ☐ no ☐ yes NA
 color? ☒ no ☐ yes 375 pt
☐ clear ☒ turbid ☐ sheen ☐ immiscible product
☐ other _____
 pH (SU) 6.90 temp (C) 13.3 cond (umhos) 13900
 ORP (mV) -5.1 turb (NTU) _____ PID (ppm) _____

comments / remarks

DUP # 036



EMCON

FIELD SAMPLING DATA SHEET

sample ID W8G sample date/time 5/15/96 1450
 (lab) sample number #038 NEI field personnel SI, GA, RB, BM
 project kin Buc OUI observer _____
 project number 12568.001.000
 weather conditions (estimate wind, cloud, precip, humidity, temp) clear, cool, 50-60's

SAMPLE TYPE
☐ composite ☒ grab
☒ groundwater ☐ surface water ☐ soil ☐ sediment
☐ leachate ☐ industrial ☐ storm sewer ☐ gas
☐ other _____

MONITORING WELL DATA

casing diameter 2 inch ☒ PVC ☐ steel ☐ other
 static water level 10.10 ft from ☒ well casing from ☐ protective casing
 bottom depth 20.00 from ☒ well casing from ☐ protective casing
 static water level indicator type ☐ steel tape ☒ electronic ☐ other
 linear conversion .164 water volume in well 1.58 gal.
 well condition flooded w/ oily substance.

MONITORING WELL PURGE DATA

☐ submersible pump ☐ peristaltic pump ☒ suction pump ☐ PVC bailer
☐ poly bailer ☐ teflon bailer ☐ other _____
 dedicated purge equipment? ☒ yes ☐ no
 pumping rate _____ elapsed time _____
 bail volume _____ number of bails _____
 volume purged 4.0 gal well volumes 2.53 vols.
 time purge complete _____ well evacuated? ☐ yes ☒ no

SAMPLING DATA

☐ pump ☐ PVC bailer ☐ poly bailer ☐ teflon bailer
☐ stainless bucket ☐ poly cup ☐ tedlar bag ☐ direct
☐ hand corer ☐ hand auger ☐ stainless spoon ☐ split spoon
☒ other peristaltic used because of heavy oil above H₂O
 dedicated sampling equipment? ☒ yes ☐ no
 metals field filtered? ☒ yes ☐ no
 depth of sample ~19'
 sample containers 500 COC.

PHYSICAL AND CHEMICAL DATA

odor? ☐ no ☒ yes
 sediment? ☐ no ☐ yes NA
 color? ☒ no ☐ yes Brown oil floating on groundwater.
☐ clear ☒ turbid ☒ sheen ☒ immiscible product
☒ other _____
 pH (SU) 6.68 temp (C) 17.2 cond (umhos) 3600
 ORP (mV) 53 turb (NTU) _____ PID (ppm) _____

comments / remarks

2-4 foot thick layer heavy oil in well

500433



EMCON

FIELD SAMPLING DATA SHEET

sample ID W85 sample date/time 6/15/96 1120
 (lab) sample number #026 NEI field personnel SI, GA, RB, BM
 project kin Buc 041 observer _____
 project number 12568.001.000
 weather conditions (estimate wind, cloud, precip, humidity, temp) clear, cool, 50-60's

SAMPLE TYPE
☐ composite ☒ grab
☒ groundwater ☐ surface water ☐ soil ☐ sediment
☐ leachate ☐ industrial ☐ storm sewer ☐ gas
☐ other _____

MONITORING WELL DATA
 casing diameter 2" ☒ PVC ☐ steel ☐ other
 static water level 9.11 from ☒ well casing from ☐ protective casing
 bottom depth 28.53 from ☒ well casing from ☐ protective casing
 static water level indicator type ☐ steel tape ☒ electronic ☐ other
 linear conversion .164 water volume in well 3.11
 well condition good

MONITORING WELL PURGE DATA
☐ submersible pump ☐ peristaltic pump ☐ suction pump ☐ PVC bailer
☐ poly bailer ☒ teflon bailer ☐ other _____
 dedicated purge equipment? ☒ yes ☐ no
 pumping rate _____ elapsed time _____
 bail volume _____ number of bails _____
 volume purged 10 gal well volumes 3
 time purge complete 10:10 well evacuated? ☐ yes ☒ no

SAMPLING DATA
☐ pump ☐ PVC bailer ☐ poly bailer ☒ teflon bailer
☐ stainless bucket ☐ poly cup ☐ tedlar bag ☐ direct
☐ hand corer ☐ hand auger ☐ stainless spoon ☐ split spoon
☐ other _____
 dedicated sampling equipment? ☒ yes ☐ no
 metals field filtered? ☒ yes ☐ no
 depth of sample ~ 11
 sample containers see col

PHYSICAL AND CHEMICAL DATA

odor? ☐ no ☒ yes
 sediment? ☐ no ☒ yes grey
 color? ☒ no ☐ yes slight
☐ clear ☒ turbid ☐ sheen ☐ immiscible product
☐ other _____

pH (SU) 7.09 temp (C) 13.3 cond (umhos) 1250
 ORP (mV) -12.9 turb (NTU) _____ PID (ppm) 0

comments / remarks

FB-02 @ 1100 #025



EMCON

FIELD SAMPLING DATA SHEET

| | |
|---|---|
| sample ID <u>W8R</u> (lab) sample number <u>NEI #34</u> project <u>kin Buc OUI</u> project number <u>12568.001.000</u> weather conditions (estimate wind, cloud, precip, humidity, temp) <u>clear, cool, 50-60's</u> | sample date/time <u>5/15/96 1210</u> field personnel <u>SI, GA, RB, BM</u> observer _____ |
|---|---|

| | | | | |
|--------------------|--|---|---|---|
| SAMPLE TYPE | <input type="checkbox"/> composite <input checked="" type="checkbox"/> groundwater <input type="checkbox"/> leachate <input type="checkbox"/> other | <input checked="" type="checkbox"/> grab <input type="checkbox"/> surface water <input type="checkbox"/> industrial | <input type="checkbox"/> soil <input type="checkbox"/> storm sewer | <input type="checkbox"/> sediment <input type="checkbox"/> gas |
|--------------------|--|---|---|---|

| | | | |
|---|---|--|--|
| MONITORING WELL DATA | | | |
| casing diameter <u>2 inch</u> static water level <u>8.41</u> bottom depth <u>42.38</u> static water level indicator type <input checked="" type="checkbox"/> steel tape linear conversion <u>.164</u> well condition <u>good</u> | <input checked="" type="checkbox"/> PVC <input type="checkbox"/> well casing <input type="checkbox"/> well casing | <input type="checkbox"/> steel <input type="checkbox"/> protective casing <input type="checkbox"/> protective casing <input checked="" type="checkbox"/> electronic water volume in well <u>5.44 gal</u> | <input type="checkbox"/> other <input type="checkbox"/> other <input type="checkbox"/> other |

| | | | |
|--|--|--|-------------------------------------|
| MONITORING WELL PURGE DATA | | | |
| <input type="checkbox"/> submersible pump <input type="checkbox"/> poly bailer dedicated purge equipment? <input checked="" type="checkbox"/> yes pumping rate _____ bail volume _____ volume purged _____ time purge complete _____ | <input type="checkbox"/> peristaltic pump <input type="checkbox"/> teflon bailer <input type="checkbox"/> yes elapsed time _____ number of bails _____ well volumes _____ well evacuated? <input type="checkbox"/> yes <input type="checkbox"/> no | <input type="checkbox"/> suction pump <input type="checkbox"/> other <input type="checkbox"/> no | <input type="checkbox"/> PVC bailer |

| | | | |
|---|---|---|--|
| SAMPLING DATA | | | |
| <input type="checkbox"/> pump <input type="checkbox"/> stainless bucket <input type="checkbox"/> hand corer <input type="checkbox"/> other | <input type="checkbox"/> PVC bailer <input type="checkbox"/> poly cup <input type="checkbox"/> hand auger | <input type="checkbox"/> poly bailer <input type="checkbox"/> tedlar bag <input type="checkbox"/> stainless spoon | <input checked="" type="checkbox"/> teflon bailer <input type="checkbox"/> direct <input type="checkbox"/> split spoon |
| dedicated sampling equipment? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no metals field filtered? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no | | depth of sample <u>~10'</u> sample containers <u>See COC</u> | |

| | | | |
|--|---|---|--|
| PHYSICAL AND CHEMICAL DATA | | | |
| odor? <input type="checkbox"/> no <input checked="" type="checkbox"/> yes sediment? <input type="checkbox"/> no <input type="checkbox"/> yes color? <input checked="" type="checkbox"/> no <input type="checkbox"/> yes <input type="checkbox"/> clear <input checked="" type="checkbox"/> turbid <input type="checkbox"/> other | sheen <input type="checkbox"/> immiscible product | <u>NA</u> <u>"</u> | |
| pH (SU) <u>6.63</u> ORP (mV) <u>8.9</u> | temp (C) <u>13.2°C</u> turb (NTU) _____ | cond (umhos) <u>13,000</u> PID (ppm) _____ | |
| comments / remarks _____ _____ _____ | | | |

500435



Emcon

FIELD SAMPLING DATA SHEET

sample ID W9G
 (lab) sample number NEI #005
 project kin Buc 001
 project number 12568.001.000
 weather conditions (estimate wind, cloud, precip, humidity, temp)

sample date/time 5/14/96 1342
 field personnel SI, GA, RB, BM
 observer _____

clear, pleasant, sunny, 60's

SAMPLE TYPE

☐ composite ☒ grab
☒ groundwater ☐ surface water ☐ soil ☐ sediment
☐ leachate ☐ industrial ☐ storm sewer ☐ gas
☐ other _____

MONITORING WELL DATA

casing diameter 2" ☒ PVC ☐ steel ☐ other
 static water level 21.40 from ☒ well casing from ☐ protective casing
 bottom depth 21.64 from ☒ well casing from ☐ protective casing
 static water level indicator type ☐ steel tape ☒ electronic ☐ other
 linear conversion .164 water volume in well .41 gal.
 well condition good

MONITORING WELL PURGE DATA

☐ submersible pump ☒ peristaltic pump ☐ suction pump ☐ PVC bailer
☐ poly bailer ☐ teflon bailer ☐ other _____
 dedicated purge equipment? ☒ yes ☐ no
 pumping rate _____ elapsed time _____
 bail volume _____ number of bails _____
 volume purged 2.0 gal well volumes 4.88
 time purge complete 1240 well evacuated? ☐ yes ☒ no

SAMPLING DATA

☐ pump ☐ PVC bailer ☐ poly bailer ☐ teflon bailer
☐ stainless bucket ☐ poly cup ☐ tedlar bag ☐ direct
☐ hand corer ☐ hand auger ☐ stainless spoon ☐ split spoon
☒ other peristaltic
 dedicated sampling equipment? ☒ yes ☐ no
 metals field filtered? ☒ yes ☐ no
 depth of sample ~21.50
 sample containers See coc.

PHYSICAL AND CHEMICAL DATA

odor? ☐ no ☒ yes
 sediment? ☐ no ☒ yes Tan.
 color? ☒ no ☐ yes
☒ clear ☐ turbid ☐ sheen ☐ immiscible product
☐ other _____

pH (SU) 5.40 temp (C) 14.2 cond (umhos) 810
 ORP (mV) NA turb (NTU) _____ PID (ppm) _____

comments / remarks _____

500436



EMCON

FIELD SAMPLING DATA SHEET

| | | | |
|--|--|---|--|
| sample ID <u>W9R</u> | | sample date/time <u>5/14/96</u> <u>1400</u> | |
| (lab) sample number <u>NEI #007</u> | | field personnel <u>SI, GA, RB, BM</u> | |
| project <u>kin BUC OUI</u> | | observer _____ | |
| project number <u>12568.001.000</u> | | | |
| weather conditions (estimate wind, cloud, precip, humidity, temp) <u>clear, pleasant, sunny, 60's</u> | | | |

| | | | | |
|--------------------|---|--|--------------------------------------|-----------------------------------|
| SAMPLE TYPE | <input type="checkbox"/> composite | <input checked="" type="checkbox"/> grab | | |
| | <input checked="" type="checkbox"/> groundwater | <input type="checkbox"/> surface water | <input type="checkbox"/> soil | <input type="checkbox"/> sediment |
| | <input type="checkbox"/> leachate | <input type="checkbox"/> industrial | <input type="checkbox"/> storm sewer | <input type="checkbox"/> gas |
| | <input type="checkbox"/> other | | | |
| | | | | |

| | | | |
|---|--|---|--------------------------------|
| MONITORING WELL DATA | | | |
| casing diameter <u>2"</u> | <input checked="" type="checkbox"/> PVC | <input type="checkbox"/> steel | <input type="checkbox"/> other |
| static water level <u>19.14</u> | from <input checked="" type="checkbox"/> well casing | from <input type="checkbox"/> protective casing | |
| bottom depth <u>30.85</u> | from <input checked="" type="checkbox"/> well casing | from <input type="checkbox"/> protective casing | |
| static water level indicator type <input type="checkbox"/> steel tape | <input checked="" type="checkbox"/> electronic | <input type="checkbox"/> other | |
| linear conversion <u>1.64</u> | water volume in well <u>1.87 gal</u> | | |
| well condition <u>good</u> | | | |

| | | | |
|--|---|---------------------------------------|-------------------------------------|
| MONITORING WELL PURGE DATA | | | |
| <input type="checkbox"/> submersible pump | <input type="checkbox"/> peristaltic pump | <input type="checkbox"/> suction pump | <input type="checkbox"/> PVC bailer |
| <input type="checkbox"/> poly bailer | <input checked="" type="checkbox"/> teflon bailer | <input type="checkbox"/> other | |
| dedicated purge equipment? <input checked="" type="checkbox"/> yes | | <input type="checkbox"/> no | |
| pumping rate _____ | elapsed time _____ | | |
| bail volume _____ | number of bails _____ | | |
| volume purged <u>6.0 gal</u> | well volumes <u>3.21</u> | | |
| time purge complete <u>1230</u> | well evacuated? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no | | |

| | | | |
|---|-------------------------------------|--|---|
| SAMPLING DATA | | | |
| <input type="checkbox"/> pump | <input type="checkbox"/> PVC bailer | <input type="checkbox"/> poly bailer | <input checked="" type="checkbox"/> teflon bailer |
| <input type="checkbox"/> stainless bucket | <input type="checkbox"/> poly cup | <input type="checkbox"/> tedlar bag | <input type="checkbox"/> direct |
| <input type="checkbox"/> hand corer | <input type="checkbox"/> hand auger | <input type="checkbox"/> stainless spoon | <input type="checkbox"/> split spoon |
| <input type="checkbox"/> other | | | |
| dedicated sampling equipment? <input checked="" type="checkbox"/> yes | | <input type="checkbox"/> no | |
| metals field filtered? <input checked="" type="checkbox"/> yes | | <input type="checkbox"/> no | |
| depth of sample <u>~22</u> | | | |
| sample containers <u>see COC</u> | | | |

| | | | |
|---|--------------------------------|---|--|
| PHYSICAL AND CHEMICAL DATA | | | |
| odor? <input checked="" type="checkbox"/> no <input type="checkbox"/> yes | | | |
| sediment? <input type="checkbox"/> no <input checked="" type="checkbox"/> yes | <u>grey</u> | | |
| color? <input checked="" type="checkbox"/> no <input type="checkbox"/> yes | | | |
| <input type="checkbox"/> clear <input checked="" type="checkbox"/> turbid | <input type="checkbox"/> sheen | <input type="checkbox"/> immiscible product | |
| <input type="checkbox"/> other | | | |
| pH (SU) <u>5.97</u> | temp (C) <u>14.0</u> | cond (umhos) <u>640</u> | |
| ORP (mV) <u>45.7</u> | turb (NTU) _____ | PID (ppm) _____ | |
| comments / remarks _____ | | | |
| _____ | | | |
| _____ | | | |

500437



EMCON

FIELD SAMPLING DATA SHEET

5/14/96

1355

sample ID W10G sample date/time 5/15/96 BUS/1700
 (lab) sample number #006 NEI field personnel SI, GA, RB, BM
 project kin Buc Out observer _____
 project number 12568.001.000
 weather conditions (estimate wind, cloud, precip, humidity, temp) clear, pleasant, sunny, 60's

SAMPLE TYPE ☐ composite ☒ grab ☐ soil ☐ sediment
☒ groundwater ☐ surface water ☐ storm sewer ☐ gas
☐ leachate ☐ industrial ☐ other _____

MONITORING WELL DATA

casing diameter 2" ☒ PVC ☐ steel ☐ other
 static water level 18.85 from ☒ well casing from ☐ protective casing
 bottom depth 22.28 from ☒ well casing from ☐ protective casing
 static water level indicator type ☐ steel tape ☒ electronic ☐ other
 linear conversion .164 water volume in well 0.55 gal
 well condition good

MONITORING WELL PURGE DATA

☐ submersible pump ☒ peristaltic pump ☐ suction pump ☐ PVC bailer
☐ poly bailer ☐ teflon bailer ☐ other _____
 dedicated purge equipment? ☒ yes ☐ no
 pumping rate _____ elapsed time _____
 bail volume _____ number of bails _____
 volume purged 2 gal. well volumes 3.64
 time purge complete 1310 5/14/96 well evacuated? ☐ yes ☒ no

SAMPLING DATA

☐ pump ☐ PVC bailer ☐ poly bailer ☐ teflon bailer
☐ stainless bucket ☐ poly cup ☐ tedlar bag ☐ direct
☐ hand corer ☐ hand auger ☐ stainless spoon ☐ split spoon
☒ other peristaltic
 dedicated sampling equipment? ☒ yes ☐ no
 metals field filtered? ☒ yes ☐ no
 depth of sample 222.00
 sample containers see col

PHYSICAL AND CHEMICAL DATA

odor? ☐ no ☒ yes
 sediment? ☐ no ☒ yes Brown
 color? ☒ no ☐ yes
☒ clear ☐ turbid ☐ sheen ☐ immiscible product
☐ other _____
 pH (SU) 6.73 temp (C) 15.7 cond (umhos) 380
 ORP (mV) -4.4 turb (NTU) _____ PID (ppm) _____

comments / remarks

sampled over two days

500438



EMCON

FIELD SAMPLING DATA SHEET

| | | | |
|--|--|---|--|
| sample ID <u>W10R</u> | | sample date/time <u>5/14/96</u> <u>1412</u> | |
| (lab) sample number <u>NEI #008</u> | | field personnel <u>SI, GA, RB, BM</u> | |
| project <u>kin Buc OUI</u> | | observer _____ | |
| project number <u>12568.001.000</u> | | | |
| weather conditions (estimate wind, cloud, precip, humidity, temp) <u>clear, pleasant, sunny, 60's</u> | | | |

| | | | |
|---|--|--------------------------------------|-----------------------------------|
| SAMPLE TYPE | | | |
| <input type="checkbox"/> composite | <input checked="" type="checkbox"/> grab | | |
| <input checked="" type="checkbox"/> groundwater | <input type="checkbox"/> surface water | <input type="checkbox"/> soil | <input type="checkbox"/> sediment |
| <input type="checkbox"/> leachate | <input type="checkbox"/> industrial | <input type="checkbox"/> storm sewer | <input type="checkbox"/> gas |
| <input type="checkbox"/> other | | | |

| | | | |
|---|--|---|--------------------------------|
| MONITORING WELL DATA | | | |
| casing diameter <u>2"</u> | <input checked="" type="checkbox"/> PVC | <input type="checkbox"/> steel | <input type="checkbox"/> other |
| static water level <u>19.28</u> | from <input checked="" type="checkbox"/> well casing | from <input type="checkbox"/> protective casing | |
| bottom depth <u>33.68</u> | from <input checked="" type="checkbox"/> well casing | from <input type="checkbox"/> protective casing | |
| static water level indicator type <input type="checkbox"/> steel tape | <input checked="" type="checkbox"/> electronic | <input type="checkbox"/> other | |
| linear conversion <u>.164</u> | water volume in well <u>2.30 gal.</u> | | |
| well condition <u>good.</u> | | | |

| | | | |
|--|---|---------------------------------------|-------------------------------------|
| MONITORING WELL PURGE DATA | | | |
| <input type="checkbox"/> submersible pump | <input type="checkbox"/> peristaltic pump | <input type="checkbox"/> suction pump | <input type="checkbox"/> PVC bailer |
| <input type="checkbox"/> poly bailer | <input checked="" type="checkbox"/> teflon bailer | <input type="checkbox"/> other | |
| dedicated purge equipment? <input checked="" type="checkbox"/> yes | | <input type="checkbox"/> no | |
| pumping rate _____ | elapsed time _____ | | |
| bail volume _____ | number of bails _____ | | |
| volume purged <u>4 gal</u> | well volumes <u>1.74</u> | | |
| time purge complete <u>1320</u> | well evacuated? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no | | |

| | | | |
|---|-------------------------------------|--|---|
| SAMPLING DATA | | | |
| <input type="checkbox"/> pump | <input type="checkbox"/> PVC bailer | <input type="checkbox"/> poly bailer | <input checked="" type="checkbox"/> teflon bailer |
| <input type="checkbox"/> stainless bucket | <input type="checkbox"/> poly cup | <input type="checkbox"/> tedlar bag | <input type="checkbox"/> direct |
| <input type="checkbox"/> hand corer | <input type="checkbox"/> hand auger | <input type="checkbox"/> stainless spoon | <input type="checkbox"/> split spoon |
| <input type="checkbox"/> other | | | |
| dedicated sampling equipment? <input checked="" type="checkbox"/> yes | | <input type="checkbox"/> no | |
| metals field filtered? <input checked="" type="checkbox"/> yes | | <input type="checkbox"/> no | |
| depth of sample <u>~ 25'</u> | | | |
| sample containers <u>See Cae</u> | | | |

| | | | |
|---|--------------------------------|---|--|
| PHYSICAL AND CHEMICAL DATA | | | |
| odor? <input checked="" type="checkbox"/> no <input type="checkbox"/> yes | | | |
| sediment? <input type="checkbox"/> no <input checked="" type="checkbox"/> yes | <u>gray tan</u> | | |
| color? <input checked="" type="checkbox"/> no <input type="checkbox"/> yes | | | |
| <input type="checkbox"/> clear <input checked="" type="checkbox"/> turbid | <input type="checkbox"/> sheen | <input type="checkbox"/> immiscible product | |
| <input type="checkbox"/> other | | | |
| pH (SU) <u>6.63</u> | temp (C) <u>12.7</u> | cond (umhos) <u>195</u> | |
| ORP (mV) <u>13.4</u> | turb (NTU) _____ | PID (ppm) <u>0</u> | |
| comments / remarks _____ | | | |



EMCON

FIELD SAMPLING DATA SHEET

sample ID NEI-36
 (lab) sample number NEI # 043
 project Kimberly 042
 project number 12588-001,000

sample date/time 5/16/96 1020
 field personnel D. B. L. S. S. S. S.
B. M. L. S. S. S. S.
 observer _____

weather conditions (estimate wind, cloud, precip, humidity, temp)

rain, cool, breezy, 50's

SAMPLE TYPE

☐ composite ☒ grab
☒ groundwater ☐ surface water ☐ soil ☐ sediment
☐ leachate ☐ industrial ☐ storm sewer ☐ gas
☐ other _____

MONITORING WELL DATA

casing diameter 4 inch ☒ PVC ☐ steel ☐ other
 static water level 4.89 from ☒ well casing from ☐ protective casing
 bottom depth 13.65 from ☒ well casing from ☐ protective casing
 static water level indicator type ☐ steel tape ☒ electronic ☐ other
 linear conversion 0.65 water volume in well 5.69 gal
 well condition OK

MONITORING WELL PURGE DATA

☐ submersible pump ☐ peristaltic pump ☐ suction pump ☐ PVC bailer
☐ poly bailer ☒ teflon bailer ☐ other _____
 dedicated purge equipment? ☒ yes ☐ no
 pumping rate _____ elapsed time _____
 bail volume _____ number of bails _____
 volume purged 17.0 gal well volumes 2.79
 time purge complete _____ well evacuated? ☐ yes ☒ no

SAMPLING DATA

☐ pump ☐ PVC bailer ☐ poly bailer ☒ teflon bailer
☐ stainless bucket ☐ poly cup ☐ tedlar bag ☐ direct
☐ hand corer ☐ hand auger ☐ stainless spoon ☐ split spoon
☐ other _____
 dedicated sampling equipment? ☒ yes ☐ no
 metals field filtered? ☒ yes ☐ no
 depth of sample ~7'
 sample containers quarterly container set

PHYSICAL AND CHEMICAL DATA

odor? ☐ no ☒ yes
 sediment? ☐ no ☐ yes NA
 color? ☒ no ☐ yes
☒ clear ☐ turbid ☐ sheen ☐ immiscible product
☒ other black suspension
 pH (SU) 6.57 temp (C) 11.5 cond (umhos) 790
 ORP (mV) 15.5 turb (NTU) _____ PID (ppm) _____

comments / remarks _____

500440

**EMCON****FIELD SAMPLING DATA SHEET**

sample ID WE-35 sample date/time 5/16/96 1010
 (lab) sample number NEI #042 field personnel D. Biltz, S. Engle
 project KinBuc 042 B. McManis, G. Antolik
 project number 12568-001,000 observer _____
 weather conditions (estimate wind, cloud, precip, humidity, temp)
rain, cool, breezy, 50's

SAMPLE TYPE
☐ composite ☒ grab
☒ groundwater ☐ surface water ☐ soil ☐ sediment
☐ leachate ☐ industrial ☐ storm sewer ☐ gas
☐ other _____

MONITORING WELL DATA
 casing diameter 2 inch ☒ PVC ☐ steel ☐ other
 static water level 13.61 from ☒ well casing from ☐ protective casing
 bottom depth 25.38 from ☒ well casing from ☐ protective casing
 static water level indicator type ☐ steel tape ☒ electronic ☐ other
 linear conversion 0.16 water volume in well 1.88 gal
 well condition OK

MONITORING WELL PURGE DATA
☐ submersible pump ☐ peristaltic pump ☐ suction pump ☐ PVC bailer
☐ poly bailer ☒ teflon bailer ☐ other _____
 dedicated purge equipment? ☒ yes ☐ no
 pumping rate _____ elapsed time _____
 bail volume _____ number of bails _____
 volume purged 6 gal well volumes 3.19
 time purge complete _____ well evacuated? ☐ yes ☒ no

SAMPLING DATA
☐ pump ☐ PVC bailer ☐ poly bailer ☒ teflon bailer
☐ stainless bucket ☐ poly cup ☐ tedlar bag ☐ direct
☐ hand corer ☐ hand auger ☐ stainless spoon ☐ split spoon
☐ other _____
 dedicated sampling equipment? ☒ yes ☐ no
 metals field filtered? ☒ yes ☐ no
 depth of sample ~16
 sample containers quarterly container set

PHYSICAL AND CHEMICAL DATA

odor? ☐ no ☒ yes
 sediment? ☐ no ☐ yes
 color? ☒ no ☐ yes
☐ clear ☒ turbid
☐ other _____

NA☐ sheen☐ immiscible productpH (SU) 6.20temp (C) 13.2cond (umhos) 10000ORP (mV) 31.2

turb (NTU) _____

PID (ppm) _____

comments / remarks _____

500441

**EMCON****FIELD SAMPLING DATA SHEET**

sample ID WE-3R
 (lab) sample number NEI # 099
 project KinBuc 042
 project number 12568-00100
 weather conditions (estimate wind, cloud, precip, humidity, temp)
rain, cool, breezy, 50's

sample date/time 5/16/96 1035
 field personnel D. Birkha, S. Engles
B. McLancon, G. Antolik
 observer _____

SAMPLE TYPE

☐ composite ☒ grab
☒ groundwater ☐ surface water ☐ soil ☐ sediment
☐ leachate ☐ industrial ☐ storm sewer ☐ gas
☐ other _____

MONITORING WELL DATA

casing diameter 2 inch ☐ PVC ☒ steel ☐ other
 static water level 13.59' from ☒ well casing from ☐ protective casing
 bottom depth 46.27' from ☒ well casing from ☐ protective casing
 static water level indicator type ☐ steel tape ☒ electronic ☐ other
 linear conversion 0-16 water volume in well 5.23 gal
 well condition OK

MONITORING WELL PURGE DATA

☐ submersible pump ☐ peristaltic pump ☐ suction pump ☐ PVC bailer
☐ poly bailer ☒ teflon bailer ☐ other _____
 dedicated purge equipment? ☒ yes ☐ no
 pumping rate _____ elapsed time _____
 bail volume _____ number of bails _____
 volume purged 17 gal well volumes 3.25
 time purge complete _____ well evacuated? ☐ yes ☒ no

SAMPLING DATA

☐ pump ☐ PVC bailer ☐ poly bailer ☒ teflon bailer
☐ stainless bucket ☐ poly cup ☐ tedlar bag ☐ direct
☐ hand corer ☐ hand auger ☐ stainless spoon ☐ split spoon
☐ other _____
 dedicated sampling equipment? ☒ yes ☐ no
 metals field filtered? ☒ yes ☐ no
 depth of sample ~16'
 sample containers quarterly container set

PHYSICAL AND CHEMICAL DATA

odor? ☒ no ☐ yes
 sediment? ☐ no ☒ yes tan
 color? ☒ no ☐ yes
☒ clear ☐ turbid ☐ sheen ☐ immiscible product
☐ other _____

pH (SU) 6.43 temp (C) 14.3 cond (umhos) 13500
 ORP (mV) 17.5 turb (NTU) _____ PID (ppm) _____

comments / remarks _____

500442



EMCON

FIELD SAMPLING DATA SHEET

sample ID BEI-561 sample date/time 5/16/96 1330
 (lab) sample number NEI #052 field personnel D. Bilal, S. Engle
 project KinBac Ouz B. McFarlan, G. Antolito
 project number 12568-001,000 observer _____
 weather conditions (estimate wind, cloud, precip, humidity, temp) rain, cool, breezy, 50's

SAMPLE TYPE
☐ composite ☒ grab
☒ groundwater ☐ surface water ☐ soil ☐ sediment
☐ leachate ☐ industrial ☐ storm sewer ☐ gas
☐ other _____

MONITORING WELL DATA

casing diameter 4 inch ☒ PVC ☐ steel ☐ other
 static water level 8.81 from ☒ well casing from ☐ protective casing
 bottom depth 14.43 from ☒ well casing from ☐ protective casing
 static water level indicator type ☐ steel tape ☒ electronic ☐ other
 linear conversion 0.65 water volume in well 3.65 gal
 well condition OK

MONITORING WELL PURGE DATA

☐ submersible pump ☐ peristaltic pump ☐ suction pump ☐ PVC bailer
☐ poly bailer ☒ teflon bailer ☐ other _____
 dedicated purge equipment? ☒ yes ☐ no
 pumping rate _____ elapsed time _____
 bail volume _____ number of bails _____
 volume purged 11 gal well volumes 3.01
 time purge complete _____ well evacuated? ☐ yes ☒ no

SAMPLING DATA

☐ pump ☐ PVC bailer ☐ poly bailer ☒ teflon bailer
☐ stainless bucket ☐ poly cup ☐ tedlar bag ☐ direct
☐ hand corer ☐ hand auger ☐ stainless spoon ☐ split spoon
☐ other _____
 dedicated sampling equipment? ☒ yes ☐ no
 metals field filtered? ☒ yes ☐ no
 depth of sample ~11
 sample containers quarterly container set

PHYSICAL AND CHEMICAL DATA

odor? ☐ no ☒ yes
 sediment? ☐ no ☐ yes N/A
 color? ☒ no ☐ yes 4.4
☐ clear ☒ turbid ☐ sheen ☐ immiscible product
☐ other _____
 pH (SU) 6.55 temp (C) 11.5 cond (umhos) 3100
 ORP (mV) 13.3 turb (NTU) _____ PID (ppm) _____

comments / remarks

ms #053
ms #054

**EMCON****FIELD SAMPLING DATA SHEET**

sample ID WE-55
 (lab) sample number WEI # 049
 project Kim Bue 042
 project number 12 588-001,000

sample date/time 5/16/96 1300
 field personnel D. Bilzha, S. Engles
B. McAncon, G. Antolito
 observer _____

weather conditions (estimate wind, cloud, precip, humidity, temp)

rain, cool, breezy, 50's

SAMPLE TYPE

☐ composite ☒ grab
☒ groundwater ☐ surface water ☐ soil ☐ sediment
☐ leachate ☐ industrial ☐ storm sewer ☐ gas
☐ other _____

MONITORING WELL DATA

casing diameter 2 inch ☐ PVC ☐ steel ☐ other
 static water level 13.78 from ☒ well casing from ☐ protective casing
 bottom depth 25.67 from ☒ well casing from ☐ protective casing
 static water level indicator type ☐ steel tape ☒ electronic ☐ other
 linear conversion 0.16 water volume in well 1.90 gal
 well condition OK

MONITORING WELL PURGE DATA

☐ submersible pump ☐ peristaltic pump ☐ suction pump ☐ PVC bailer
☐ poly bailer ☒ teflon bailer ☐ other _____
 dedicated purge equipment? ☒ yes ☐ no
 pumping rate _____ elapsed time _____
 bail volume _____ number of bails _____
 volume purged 6 gal well volumes 3.16
 time purge complete _____ well evacuated? ☐ yes ☒ no

SAMPLING DATA

☐ pump ☐ PVC bailer ☐ poly bailer ☒ teflon bailer
☐ stainless bucket ☐ poly cup ☐ tedlar bag ☐ direct
☐ hand corer ☐ hand auger ☐ stainless spoon ☐ split spoon
☐ other _____
 dedicated sampling equipment? ☒ yes ☐ no
 metals field filtered? ☒ yes ☐ no
 depth of sample ~18'
 sample containers quarterly container set

PHYSICAL AND CHEMICAL DATA

odor? ☐ no ☒ yes
 sediment? ☐ no ☐ yes NA
 color? ☐ no ☐ yes
☐ clear ☒ slight ☐ sheen ☐ immiscible product
☐ other _____

pH (SU) 6.59 temp (C) 13.0 cond (umhos) 8120
 ORP (mV) 6.6 turb (NTU) _____ PID (ppm) _____

comments / remarks

DUP #050

**EMCON****FIELD SAMPLING DATA SHEET**

sample ID WE-5R
 (lab) sample number NEI #051
 project Kin Bue Out
 project number 12588-001,000

sample date/time 5/16/96 1320
 field personnel D. Bilal, S. Engles
B. Melancon, G. Antolito
 observer _____

weather conditions (estimate wind, cloud, precip, humidity, temp)

rain, cool, breezy, 50's

SAMPLE TYPE

☐ composite ☒ grab
☒ groundwater ☐ surface water ☐ soil ☐ sediment
☐ leachate ☐ industrial ☐ storm sewer ☐ gas
☐ other _____

MONITORING WELL DATA

casing diameter 2 inch ☐ PVC ☒ steel ☐ other
 static water level 17.72' from ☒ well casing from ☐ protective casing
 bottom depth 49.11' from ☒ well casing from ☐ protective casing
 static water level indicator type ☐ steel tape ☒ electronic ☐ other
 linear conversion 0-16 water volume in well 5.66 gal
 well condition OK

MONITORING WELL PURGE DATA

☐ submersible pump ☐ peristaltic pump ☐ suction pump ☐ PVC bailer
☐ poly bailer ☒ teflon bailer ☐ other _____
 dedicated purge equipment? ☒ yes ☐ no
 pumping rate _____ elapsed time _____
 bail volume _____ number of bails _____
 volume purged 18 gal well volumes 5.18
 time purge complete _____ well evacuated? ☐ yes ☒ no

SAMPLING DATA

☐ pump ☐ PVC bailer ☐ poly bailer ☒ teflon bailer
☐ stainless bucket ☐ poly cup ☐ tedlar bag ☐ direct
☐ hand corer ☐ hand auger ☐ stainless spoon ☐ split spoon
☐ other _____
 dedicated sampling equipment? ☒ yes ☐ no
 metals field filtered? ☒ yes ☐ no
 depth of sample ~20'
 sample containers quarterly container set

PHYSICAL AND CHEMICAL DATA

odor? ☐ no ☒ yes
 sediment? ☐ no ☒ yes tan
 color? ☒ no ☐ yes
☒ clear ☐ turbid ☐ sheen ☐ immiscible product
☐ other _____

pH (SU) 6.42 temp (C) 13.2 cond (umhos) 12000
 ORP (mV) 20.2 turb (NTU) _____ PID (ppm) _____

comments / remarks _____

**EMCON****FIELD SAMPLING DATA SHEET**

sample ID UEI-64 sample date/time 5/16/96 1220
 (lab) sample number UEI #047 field personnel 12. B. L. H. S. S. S. S.
 project Kimberly D. U. 2 observer 13. M. J. H. S. S. S. S.
 project number 12588-001500
 weather conditions (estimate wind, cloud, precip, humidity, temp) rain, cool, breezy, 50's

SAMPLE TYPE
☐ composite ☒ grab
☒ groundwater ☐ surface water ☐ soil ☐ sediment
☐ leachate ☐ industrial ☐ storm sewer ☐ gas
☐ other

MONITORING WELL DATA
 casing diameter 4 inch ☒ PVC ☐ steel ☐ other
 static water level 11.31 from ☒ well casing from ☐ protective casing
 bottom depth 14.60 from ☒ well casing from ☐ protective casing
 static water level indicator type ☐ steel tape ☒ electronic ☐ other
 linear conversion 0.65 water volume in well 2.14 gal
 well condition OK

MONITORING WELL PURGE DATA
☐ submersible pump ☐ peristaltic pump ☐ suction pump ☐ PVC bailer
☐ poly bailer ☒ teflon bailer ☐ other
 dedicated purge equipment? ☒ yes ☐ no
 pumping rate _____ elapsed time _____
 bail volume _____ number of bails _____
 volume purged 5 gal well volumes 2.34
 time purge complete _____ well evacuated? ☒ yes ☐ no

SAMPLING DATA
☐ pump ☐ PVC bailer ☐ poly bailer ☒ teflon bailer
☐ stainless bucket ☐ poly cup ☐ tedlar bag ☐ direct
☐ hand corer ☐ hand auger ☐ stainless spoon ☐ split spoon
☐ other
 dedicated sampling equipment? ☒ yes ☐ no
 metals field filtered? ☒ yes ☐ no
 depth of sample ~13
 sample containers quarterly container set

PHYSICAL AND CHEMICAL DATA

odor? ☐ no ☒ yes
 sediment? ☐ no ☐ yes NA
 color? ☒ no ☐ yes
☐ clear ☒ turbid ☐ sheen ☐ immiscible product
☐ other
 pH (SU) 6.92 temp (C) 11.9 cond (umhos) 7500
 ORP (mV) -75 turb (NTU) _____ PID (ppm) _____

comments / remarks

500446

**EMCON****FIELD SAMPLING DATA SHEET**

sample ID GEI-65 sample date/time 5/16/96 1245
 (lab) sample number NEI # 048 field personnel D. B. B. S. S. S.
 project Kimberly Ouz observer B. M. J. A. A. A.
 project number 12588-001,000
 weather conditions (estimate wind, cloud, precip, humidity, temp) rain, cool, breezy, 50's

SAMPLE TYPE
☐ composite ☒ grab
☒ groundwater ☐ surface water ☐ soil ☐ sediment
☐ leachate ☐ industrial ☐ storm sewer ☐ gas
☐ other

MONITORING WELL DATA

casing diameter 2 inch ☒ PVC ☐ steel ☐ other
 static water level 20.11 from ☒ well casing from ☐ protective casing
 bottom depth 23.39 from ☒ well casing from ☐ protective casing
 static water level indicator type ☐ steel tape ☒ electronic ☐ other
 linear conversion 0.16 water volume in well 0.52
 well condition OK

MONITORING WELL PURGE DATA

☐ submersible pump ☐ peristaltic pump ☐ suction pump ☐ PVC bailer
☐ poly bailer ☒ teflon bailer ☐ other
 dedicated purge equipment? ☒ yes ☐ no
 pumping rate _____ elapsed time _____
 bail volume _____ number of bails _____
 volume purged 1 gal well volumes 1.92
 time purge complete _____ well evacuated? ☒ yes ☐ no

SAMPLING DATA

☐ pump ☐ PVC bailer ☐ poly bailer ☒ teflon bailer
☐ stainless bucket ☐ poly cup ☐ tedlar bag ☐ direct
☐ hand corer ☐ hand auger ☐ stainless spoon ☐ split spoon
☐ other
 dedicated sampling equipment? ☒ yes ☐ no
 metals field filtered? ☒ yes ☐ no
 depth of sample ~22
 sample containers quarterly container set

PHYSICAL AND CHEMICAL DATA

odor? ☐ no ☒ yes
 sediment? ☐ no ☐ yes NA
 color? ☒ no ☐ yes
☐ clear ☒ turbid ☐ sheen ☐ immiscible product
☐ other
 pH (SU) 7.24 temp (C) 13.6 cond (umhos) 1100
 ORP (mV) -26.4 turb (NTU) _____ PID (ppm) _____

comments / remarks

**EMCON****FIELD SAMPLING DATA SHEET**

sample ID WE-612 sample date/time 5/16/96 12:15
 (lab) sample number NEI # 046 field personnel D. Bierzha, Sengles
 project KinBuc 042 B. McFarcon, G. Antolito
 project number 12568-001,000 observer _____
 weather conditions (estimate wind, cloud, precip, humidity, temp) rain, cool, breezy, 50's

SAMPLE TYPE

☐ composite ☒ grab
☒ groundwater ☐ surface water ☐ soil ☐ sediment
☐ leachate ☐ industrial ☐ storm sewer ☐ gas
☐ other _____

MONITORING WELL DATA

casing diameter 2 inch ☐ PVC ☒ steel ☐ other
 static water level 17.90 from ☒ well casing from ☐ protective casing
 bottom depth 46.53 from ☒ well casing from ☐ protective casing
 static water level indicator type ☐ steel tape ☒ electronic ☐ other
 linear conversion 0.16 water volume in well 4.58 gal
 well condition OK

MONITORING WELL PURGE DATA

☐ submersible pump ☐ peristaltic pump ☐ suction pump ☐ PVC bailer
☐ poly bailer ☒ teflon bailer ☐ other _____
 dedicated purge equipment? ☒ yes ☐ no
 pumping rate _____ elapsed time _____
 bail volume _____ number of bails _____
 volume purged 14 gals well volumes 3.06
 time purge complete _____ well evacuated? ☐ yes ☒ no

SAMPLING DATA

☐ pump ☐ PVC bailer ☐ poly bailer ☒ teflon bailer
☐ stainless bucket ☐ poly cup ☐ tedlar bag ☐ direct
☐ hand corer ☐ hand auger ☐ stainless spoon ☐ split spoon
☐ other _____
 dedicated sampling equipment? ☒ yes ☐ no
 metals field filtered? ☒ yes ☐ no
 depth of sample ~20'
 sample containers quarternary container set

PHYSICAL AND CHEMICAL DATA

odor? ☐ no ☒ yes
 sediment? ☐ no ☒ yes grey
 color? ☒ no ☐ yes
☐ clear ☒ turbid ☐ sheen ☐ immiscible product
☐ other _____
 pH (SU) 6.72 temp (C) 13.4 cond (umhos) 10500
 ORP (mV) -1.5 turb (NTU) _____ PID (ppm) _____

comments / remarks

500448



FIELD SAMPLING DATA SHEET

| | | | |
|---|---|--|---|
| sample ID | WE-75 | sample date/time | 5/16/96 1145 |
| (lab) sample number | NEI # 045 | field personnel | D. Birtcher, S. Engle |
| project | Kimberly 002 | | B. Melancon, G. Antolito |
| project number | 12588-001000 | observer | |
| weather conditions (estimate wind, cloud, precip, humidity, temp) | | | |
| rain, cool, breezy, 50's | | | |
| SAMPLE TYPE | | | |
| <input type="checkbox"/> composite | <input checked="" type="checkbox"/> grab | <input type="checkbox"/> surface water | <input type="checkbox"/> sediment |
| <input checked="" type="checkbox"/> groundwater | <input type="checkbox"/> industrial | <input type="checkbox"/> storm sewer | <input type="checkbox"/> gas |
| <input type="checkbox"/> leachate | | | |
| <input type="checkbox"/> other | | | |
| MONITORING WELL DATA | | | |
| casing diameter | 2 inch | <input checked="" type="checkbox"/> PVC | <input type="checkbox"/> steel |
| static water level | 14.95' | from <input checked="" type="checkbox"/> well casing | from <input type="checkbox"/> protective casing |
| bottom depth | 29.82' | from <input checked="" type="checkbox"/> well casing | from <input type="checkbox"/> protective casing |
| static water level indicator type | <input type="checkbox"/> steel tape | <input checked="" type="checkbox"/> electronic | <input type="checkbox"/> other |
| linear conversion | 0.16 | water volume in well | 2.36 gal |
| well condition | OK | | |
| MONITORING WELL PURGE DATA | | | |
| <input type="checkbox"/> submersible pump | <input type="checkbox"/> peristaltic pump | <input type="checkbox"/> suction pump | <input type="checkbox"/> PVC bailer |
| <input type="checkbox"/> poly bailer | <input checked="" type="checkbox"/> teflon bailer | <input type="checkbox"/> other | |
| dedicated purge equipment? | | <input checked="" type="checkbox"/> yes | <input type="checkbox"/> no |
| pumping rate | | elapsed time | |
| bail volume | | number of bails | |
| volume purged | 6 gal | well volumes | 2.52 |
| time purge complete | | well evacuated? | <input type="checkbox"/> yes <input checked="" type="checkbox"/> no |
| SAMPLING DATA | | | |
| <input type="checkbox"/> pump | <input type="checkbox"/> PVC bailer | <input type="checkbox"/> poly bailer | <input checked="" type="checkbox"/> teflon bailer |
| <input type="checkbox"/> stainless bucket | <input type="checkbox"/> poly cup | <input type="checkbox"/> tedlar bag | <input type="checkbox"/> direct |
| <input type="checkbox"/> hand corer | <input type="checkbox"/> hand auger | <input type="checkbox"/> stainless spoon | <input type="checkbox"/> split spoon |
| <input type="checkbox"/> other | | | |
| dedicated sampling equipment? | | <input checked="" type="checkbox"/> yes | <input type="checkbox"/> no |
| metals field filtered? | | <input checked="" type="checkbox"/> yes | <input type="checkbox"/> no |
| depth of sample | ~20 | | |
| sample containers | quarterly container set | | |
| PHYSICAL AND CHEMICAL DATA | | | |
| odor? | <input type="checkbox"/> no <input checked="" type="checkbox"/> yes | | |
| sediment? | <input type="checkbox"/> no <input type="checkbox"/> yes | NA | |
| color? | <input checked="" type="checkbox"/> no <input type="checkbox"/> yes | | |
| <input type="checkbox"/> clear <input checked="" type="checkbox"/> turbid | <input type="checkbox"/> sheen | <input type="checkbox"/> immiscible product | |
| <input type="checkbox"/> other | | | |
| pH (SU) | 6.77 | temp (C) | 13.0 |
| ORP (mV) | 510 | turb (NTU) | |
| | | cond (umhos) | 5000 |
| | | PID (ppm) | |
| comments / remarks | | | |

500449



EMCON

FIELD SAMPLING DATA SHEET

sample ID WE-7R
 (lab) sample number NEI #044
 project Kin Bue Out
 project number 12588-001,000

sample date/time 5/16/96 1135
 field personnel D. B. ...
B. ...
 observer _____

weather conditions (estimate wind, cloud, precip, humidity, temp)

rain, cool, breezy, 50's

SAMPLE TYPE ☐ composite ☒ grab
☒ groundwater ☐ surface water ☐ soil ☐ sediment
☐ leachate ☐ industrial ☐ storm sewer ☐ gas
☐ other _____

MONITORING WELL DATA

casing diameter 2 inch ☐ PVC ☒ steel ☐ other
 static water level 14.95 from ☒ well casing from ☐ protective casing
 bottom depth 72.65 from ☒ well casing from ☐ protective casing
 static water level indicator type ☐ steel tape ☒ electronic ☐ other
 linear conversion 0-16 water volume in well 9.23 gal
 well condition OK

MONITORING WELL PURGE DATA

☐ submersible pump ☐ peristaltic pump ☐ suction pump ☐ PVC bailer
☐ poly bailer ☒ teflon bailer ☐ other _____
 dedicated purge equipment? ☒ yes ☐ no
 pumping rate _____ elapsed time _____
 bail volume _____ number of bails _____
 volume purged 2.8 gal well volumes 3.03
 time purge complete _____ well evacuated? ☐ yes ☒ no

SAMPLING DATA

☐ pump ☐ PVC bailer ☐ poly bailer ☒ teflon bailer
☐ stainless bucket ☐ poly cup ☐ tedlar bag ☐ direct
☐ hand corer ☐ hand auger ☐ stainless spoon ☐ split spoon
☐ other _____
 dedicated sampling equipment? ☒ yes ☐ no
 metals field filtered? ☒ yes ☐ no
 depth of sample ~20
 sample containers quarterly container set

PHYSICAL AND CHEMICAL DATA

odor? ☒ no ☐ yes
 sediment? ☐ no ☒ yes grey
 color? ☒ no ☐ yes
☐ clear ☒ turbid ☐ sheen ☐ immiscible product
☐ other _____
 pH (SU) 6.51 temp (C) 13.6 cond (umhos) 7100
 ORP (mV) 15.8 turb (NTU) _____ PID (ppm) _____

comments / remarks

**EMCON****FIELD SAMPLING DATA SHEET**

sample ID GEI-1067
 (lab) sample number NEI # 041
 project Amber Ouz
 project number 12588-001,000

sample date/time 5/15/96 1630
 field personnel 12 B, SE
BA, BM
 observer _____

weather conditions (estimate wind, cloud, precip, humidity, temp)

clear, cool, 50-60's

SAMPLE TYPE

☐ composite ☒ grab
☒ groundwater ☐ surface water ☐ soil ☐ sediment
☐ leachate ☐ industrial ☐ storm sewer ☐ gas
☐ other _____

MONITORING WELL DATA

casing diameter 4 inch ☒ PVC ☐ steel ☐ other
 static water level 1.41 from ☒ well casing from ☐ protective casing
 bottom depth 13.78 from ☒ well casing from ☐ protective casing
 static water level indicator type ☐ steel tape ☒ electronic ☐ other
 linear conversion 0.65 water volume in well 2.6 gal
 well condition OK

MONITORING WELL PURGE DATA

☐ submersible pump ☐ peristaltic pump ☐ suction pump ☐ PVC bailer
☐ poly bailer ☐ teflon bailer ☐ other _____
 dedicated purge equipment? ☒ yes ☐ no
 pumping rate _____ elapsed time _____
 bail volume _____ number of bails _____
 volume purged _____ well volumes _____
 time purge complete _____ well evacuated? ☐ yes ☒ no

SAMPLING DATA

☐ pump ☐ PVC bailer ☐ poly bailer ☒ teflon bailer
☐ stainless bucket ☐ poly cup ☐ tedlar bag ☐ direct
☐ hand corer ☐ hand auger ☐ stainless spoon ☐ split spoon
☐ other _____
 dedicated sampling equipment? ☒ yes ☐ no
 metals field filtered? ☒ yes ☐ no
 depth of sample ~2'
 sample containers quarterty container set

PHYSICAL AND CHEMICAL DATA

odor? ☐ no ☒ yes
 sediment? ☐ no ☐ yes NA
 color? ☐ no ☒ yes black
☐ clear ☒ turbid ☐ sheen ☐ immiscible product
☐ other _____
 pH (SU) 6.88 temp (C) 13.9 cond (umhos) 1500
 ORP (mV) 1.0 turb (NTU) _____ PID (ppm) _____

comments / remarks _____

500451



EMCON

FIELD SAMPLING DATA SHEET

sample ID WE-105 sample date/time 5/15/96 1600
 (lab) sample number NEI # 039 field personnel JB, SE
 project Kindred OIL BA, BM
 project number 12568-001.000 observer _____
 weather conditions (estimate wind, cloud, precip, humidity, temp) clear, cool, 50-60's

SAMPLE TYPE ☐ composite ☒ grab
☒ groundwater ☐ surface water ☐ soil ☐ sediment
☐ leachate ☐ industrial ☐ storm sewer ☐ gas
☐ other _____

MONITORING WELL DATA

casing diameter 2 inch ☒ PVC ☐ steel ☐ other
 static water level 12.81 from ☒ well casing from ☐ protective casing
 bottom depth 28.98 from ☒ well casing from ☐ protective casing
 static water level indicator type ☐ steel tape ☒ electronic ☐ other
 linear conversion 0.16 water volume in well 2.59 gal
 well condition OK

MONITORING WELL PURGE DATA

☐ submersible pump ☐ peristaltic pump ☐ suction pump ☐ PVC bailer
☐ poly bailer ☒ teflon bailer ☐ other _____
 dedicated purge equipment? ☒ yes ☐ no
 pumping rate _____ elapsed time _____
 bail volume _____ number of bails _____
 volume purged 9 gal well volumes 3.47
 time purge complete _____ well evacuated? ☐ yes ☒ no

SAMPLING DATA

☐ pump ☐ PVC bailer ☐ poly bailer ☒ teflon bailer
☐ stainless bucket ☐ poly cup ☐ tedlar bag ☐ direct
☐ hand corer ☐ hand auger ☐ stainless spoon ☐ split spoon
☐ other _____
 dedicated sampling equipment? ☒ yes ☐ no
 metals field filtered? ☒ yes ☐ no
 depth of sample ~15'
 sample containers quarterly container set

PHYSICAL AND CHEMICAL DATA

odor? ☒ no ☐ yes
 sediment? ☐ no ☒ yes brown
 color? ☒ no ☐ yes
☐ clear ☒ turbid ☐ sheen ☐ immiscible product
☐ other _____
 pH (SU) 7.61 temp (C) 17.6 cond (umhos) 14,520
 ORP (mV) -35.7 turb (NTU) _____ PID (ppm) _____
 comments / remarks _____



EMCON

FIELD SAMPLING DATA SHEET

sample ID WE-102 sample date/time 5/15/96 1615
 (lab) sample number NEI # 040 field personnel 12 B, SE
 project Kindred OIL GA, BM
 project number 12568-001.000 observer _____
 weather conditions (estimate wind, cloud, precip, humidity, temp) clear, cool, 50-60's

SAMPLE TYPE

| | | | |
|---|--|--------------------------------------|-----------------------------------|
| <input type="checkbox"/> composite | <input checked="" type="checkbox"/> grab | | |
| <input checked="" type="checkbox"/> groundwater | <input type="checkbox"/> surface water | <input type="checkbox"/> soil | <input type="checkbox"/> sediment |
| <input type="checkbox"/> leachate | <input type="checkbox"/> industrial | <input type="checkbox"/> storm sewer | <input type="checkbox"/> gas |
| <input type="checkbox"/> other | | | |

MONITORING WELL DATA

casing diameter 2 inch ☐ PVC ☒ steel ☐ other
 static water level 12.07 from ☒ well casing from ☐ protective casing
 bottom depth 41.46 from ☒ well casing from ☐ protective casing
 static water level indicator type ☐ steel tape ☒ electronic ☐ other
 linear conversion 0.16 water volume in well 4.70 gal
 well condition OK

MONITORING WELL PURGE DATA

☐ submersible pump ☐ peristaltic pump ☐ suction pump ☐ PVC bailer
☐ poly bailer ☒ teflon bailer ☐ other _____
 dedicated purge equipment? ☒ yes ☐ no
 pumping rate _____ elapsed time _____
 bail volume _____ number of bails _____
 volume purged 15 gal well volumes 3.17
 time purge complete _____ well evacuated? ☐ yes ☒ no

SAMPLING DATA

☐ pump ☐ PVC bailer ☐ poly bailer ☒ teflon bailer
☐ stainless bucket ☐ poly cup ☐ tedlar bag ☐ direct
☐ hand corer ☐ hand auger ☐ stainless spoon ☐ split spoon
☐ other _____
 dedicated sampling equipment? ☒ yes ☐ no
 metals field filtered? ☒ yes ☐ no
 depth of sample ~14
 sample containers quarterly container set

PHYSICAL AND CHEMICAL DATA

odor? ☒ no ☐ yes
 sediment? ☐ no ☒ yes lt. grey
 color? ☒ no ☐ yes slight
☐ clear ☒ turbid ☐ sheen ☐ immiscible product
☐ other _____
 pH (SU) 7.35 temp (C) 16.0 cond (umhos) 14900
 ORP (mV) -26.0 turb (NTU) _____ PID (ppm) _____
 comments / remarks _____



EMCON

FIELD SAMPLING DATA SHEET

sample ID WE-114D sample date/time 5/16/96 1435
 (lab) sample number NEI # 097 field personnel D. B. L. H. S. J. S. L. S.
 project Kimberly Ouz B. M. L. S. L. S. L. S.
 project number 12588-00100 observer _____
 weather conditions (estimate wind, cloud, precip, humidity, temp) rain, cool, breezy, 50's

SAMPLE TYPE ☐ composite ☒ grab ☐ groundwater ☐ surface water ☐ soil ☐ sediment
☐ leachate ☐ industrial ☐ storm sewer ☐ gas
☐ other _____

MONITORING WELL DATA

casing diameter 6 inch ☐ PVC ☒ steel ☐ other
 static water level 12.79 from ☒ well casing from ☐ protective casing
 bottom depth 34.65 from ☒ well casing from ☐ protective casing
 static water level indicator type ☐ steel tape ☒ electronic ☐ other
 linear conversion 1.47 water volume in well 32.13 gal
 well condition OK

MONITORING WELL PURGE DATA

☒ submersible pump ☐ peristaltic pump ☐ suction pump ☐ PVC bailer
☐ poly bailer ☐ teflon bailer ☐ other _____
 dedicated purge equipment? ☒ yes ☐ no
 pumping rate _____ elapsed time _____
 bail volume _____ number of bails _____
 volume purged 35 gal well volumes 1.09
 time purge complete _____ well evacuated? ☒ yes ☐ no

SAMPLING DATA

☐ pump ☐ PVC bailer ☐ poly bailer ☒ teflon bailer
☐ stainless bucket ☐ poly cup ☐ tedlar bag ☐ direct
☐ hand corer ☐ hand auger ☐ stainless spoon ☐ split spoon
☐ other _____
 dedicated sampling equipment? ☒ yes ☐ no
 metals field filtered? ☒ yes ☐ no
 depth of sample ~25'
 sample containers quarterly container set

PHYSICAL AND CHEMICAL DATA

odor? ☐ no ☒ yes
 sediment? ☐ no ☒ yes brown
 color? ☒ no ☐ yes slight
☐ clear ☒ turbid ☐ sheen ☐ immiscible product
☐ other _____
 pH (SU) 6.58 temp (C) 12.9 cond (umhos) 610
 ORP (mV) 10.1 turb (NTU) _____ PID (ppm) _____

comments / remarks

FB-03 at 1435 #096

500454

**EMCON****FIELD SAMPLING DATA SHEET**

sample ID RR-01 sample date/time 5/15/96 1030
 (lab) sample number NEI #030 field personnel DB SI
 project Van Buren OVR observer GA, BM
 project number 12588-001.000
 weather conditions (estimate wind, cloud, precip, humidity, temp) clear, cool, 50-60's

SAMPLE TYPE
☐ composite ☒ grab
☐ groundwater ☒ surface water ☐ soil ☐ sediment
☐ leachate ☐ industrial ☐ storm sewer ☐ gas
☐ other

MONITORING WELL DATA NA
 casing diameter _____ ☐ PVC ☐ steel ☐ other
 static water level _____ from ☐ well casing from ☐ protective casing
 bottom depth _____ from ☐ well casing from ☐ protective casing
 static water level indicator type ☐ steel tape ☐ electronic ☐ other
 linear conversion _____ water volume in well _____
 well condition _____

MONITORING WELL PURGE DATA NA
☐ submersible pump ☐ peristaltic pump ☐ suction pump ☐ PVC bailer
☐ poly bailer ☐ teflon bailer ☐ other
 dedicated purge equipment? ☐ yes ☐ no
 pumping rate _____ elapsed time _____
 bail volume _____ number of bails _____
 volume purged _____ well volumes _____
 time purge complete _____ well evacuated? ☐ yes ☐ no

SAMPLING DATA
☐ pump ☐ PVC bailer ☐ poly bailer ☐ teflon bailer
☐ stainless bucket ☐ poly cup ☐ tedlar bag ☒ direct
☐ hand corer ☐ hand auger ☐ stainless spoon ☐ split spoon
☐ other

dedicated sampling equipment? ☒ yes ☐ no
 metals field filtered? ☐ yes ☒ no
 depth of sample surface
 sample containers quarterly container cat

PHYSICAL AND CHEMICAL DATA

odor? ☐ no ☒ yes brackish
 sediment? ☐ no ☐ yes NA
 color? ☒ no ☐ yes 51.4+
☐ clear ☒ turbid ☐ sheen ☐ immiscible product
☐ other
 pH (SU) 8.09 temp (C) 16.8 cond (umhos) 260
 ORP (mV) -79.3 turb (NTU) _____ PID (ppm) _____

comments / remarks

at low tide

**EMCON****FIELD SAMPLING DATA SHEET**

sample ID RP-02 sample date/time 5/15/96 1142
 (lab) sample number NEI #031 field personnel DB SI
 project Ka Bue OUR GA, BM
 project number 12588-001.000 observer _____
 weather conditions (estimate wind, cloud, precip, humidity, temp) clear, cool, 50-60's

SAMPLE TYPE

☐ composite ☒ grab
☐ groundwater ☒ surface water ☐ soil ☐ sediment
☐ leachate ☐ industrial ☐ storm sewer ☐ gas
☐ other _____

MONITORING WELL DATA

casing diameter NA ☐ PVC ☐ steel ☐ other
 static water level _____ from ☐ well casing from ☐ protective casing
 bottom depth _____ from ☐ well casing from ☐ protective casing
 static water level indicator type ☐ steel tape ☐ electronic ☐ other
 linear conversion _____ water volume in well _____
 well condition _____

MONITORING WELL PURGE DATA

☐ submersible pump ☐ peristaltic pump ☐ suction pump ☐ PVC bailer
☐ poly bailer ☐ teflon bailer ☐ other _____
 dedicated purge equipment? ☐ yes ☐ no
 pumping rate _____ elapsed time _____
 bail volume _____ number of bails _____
 volume purged _____ well volumes _____
 time purge complete _____ well evacuated? ☐ yes ☐ no

SAMPLING DATA

☐ pump ☐ PVC bailer ☐ poly bailer ☐ teflon bailer
☐ stainless bucket ☐ poly cup ☐ tedlar bag ☒ direct
☐ hand corer ☐ hand auger ☐ stainless spoon ☐ split spoon
☐ other _____
 dedicated sampling equipment? ☒ yes ☐ no
 metals field filtered? ☐ yes ☒ no
 depth of sample surface
 sample containers quarterly container cat

PHYSICAL AND CHEMICAL DATA

odor? ☐ no ☒ yes brackish
 sediment? ☐ no ☐ yes NA
 color? ☒ no ☐ yes sp. pt
☐ clear ☒ turbid ☐ sheen ☐ immiscible product
☐ other _____
 pH (SU) 8.64 temp (C) 16.7 cond (umhos) 225
 ORP (mV) -71.9 turb (NTU) _____ PID (ppm) _____

comments / remarks

at low tide

500456

**EMCON****FIELD SAMPLING DATA SHEET**

sample ID 1212-03 sample date/time 5/15/96 1213
 (lab) sample number NEI #032 field personnel DB SI
 project Kan Blue OVR GA, BM
 project number 12568-001.000 observer _____
 weather conditions (estimate wind, cloud, precip, humidity, temp) clear, cool, 50-60's

SAMPLE TYPE
☐ composite ☒ grab
☐ groundwater ☒ surface water ☐ soil ☐ sediment
☐ leachate ☐ industrial ☐ storm sewer ☐ gas
☐ other _____

MONITORING WELL DATA NA
 casing diameter _____ ☐ PVC ☐ steel ☐ other
 static water level _____ from ☐ well casing from ☐ protective casing
 bottom depth _____ from ☐ well casing from ☐ protective casing
 static water level indicator type ☐ steel tape ☐ electronic ☐ other
 linear conversion _____ water volume in well _____
 well condition _____

MONITORING WELL PURGE DATA NA
☐ submersible pump ☐ peristaltic pump ☐ suction pump ☐ PVC bailer
☐ poly bailer ☐ teflon bailer ☐ other _____
 dedicated purge equipment? ☐ yes ☐ no
 pumping rate _____ elapsed time _____
 bail volume _____ number of bails _____
 volume purged _____ well volumes _____
 time purge complete _____ well evacuated? ☐ yes ☐ no

SAMPLING DATA
☐ pump ☐ PVC bailer ☐ poly bailer ☐ teflon bailer
☐ stainless bucket ☐ poly cup ☐ tedlar bag ☒ direct
☐ hand corer ☐ hand auger ☐ stainless spoon ☐ split spoon
☐ other _____
 dedicated sampling equipment? ☒ yes ☐ no
 metals field filtered? ☐ yes ☒ no
 depth of sample surface
 sample containers quarterly container cat

PHYSICAL AND CHEMICAL DATA
 odor? ☐ no ☒ yes brackish
 sediment? ☐ no ☐ yes NA
 color? ☒ no ☐ yes slight
☐ clear ☒ turbid ☐ sheen ☐ immiscible product
☐ other _____
 pH (SU) 7.96 temp (C) 17.3 cond (umhos) 270
 ORP (mV) -67.6 turb (NTU) _____ PID (ppm) _____

comments / remarks

at low tide



EMCON

FIELD SAMPLING DATA SHEET

sample ID RP-04 sample date/time 5/15/96 1220
 (lab) sample number NEI #035 field personnel DB SI
 project Wa Bue OUR GA, BM
 project number 12588-001.000 observer _____
 weather conditions (estimate wind, cloud, precip, humidity, temp) clear, cool, 50-60's

SAMPLE TYPE

| | | | |
|--------------------------------------|---|--------------------------------------|-----------------------------------|
| <input type="checkbox"/> composite | <input checked="" type="checkbox"/> grab | <input type="checkbox"/> soil | <input type="checkbox"/> sediment |
| <input type="checkbox"/> groundwater | <input checked="" type="checkbox"/> surface water | <input type="checkbox"/> storm sewer | <input type="checkbox"/> gas |
| <input type="checkbox"/> leachate | <input type="checkbox"/> industrial | | |
| <input type="checkbox"/> other | | | |

MONITORING WELL DATA

casing diameter NA ☐ PVC ☐ steel ☐ other

static water level _____ from ☐ well casing from ☐ protective casing

bottom depth _____ from ☐ well casing from ☐ protective casing

static water level indicator type ☐ steel tape ☐ electronic ☐ other

linear conversion _____ water volume in well _____

well condition _____

MONITORING WELL PURGE DATA NA

☐ submersible pump ☐ peristaltic pump ☐ suction pump ☐ PVC bailer

☐ poly bailer ☐ teflon bailer ☐ other _____

dedicated purge equipment? ☐ yes ☐ no

pumping rate _____ elapsed time _____

bail volume _____ number of bails _____

volume purged _____ well volumes _____

time purge complete _____ well evacuated? ☐ yes ☐ no

SAMPLING DATA

☐ pump ☐ PVC bailer ☐ poly bailer ☐ teflon bailer

☐ stainless bucket ☐ poly cup ☐ tedlar bag ☒ direct

☐ hand corer ☐ hand auger ☐ stainless spoon ☐ split spoon

☐ other _____

dedicated sampling equipment? ☒ yes ☐ no

metals field filtered? ☐ yes ☒ no

depth of sample surface

sample containers quarterly container cat

PHYSICAL AND CHEMICAL DATA

odor? ☐ no ☒ yes brackish

sediment? ☐ no ☐ yes NA

color? ☒ no ☐ yes slight

☐ clear ☒ turbid ☐ sheen ☐ immiscible product

☐ other _____

pH (SU) 7.93 temp (C) 16.8 cond (umhos) 230

ORP (mV) -66.5 turb (NTU) _____ PID (ppm) _____

comments / remarks at low tide

500458

APPENDIX C
OU1 FIELD QA/QC RESULTS

Appendix C
Kin-Buc Landfill Operable Unit 1
Duplicates Sample Comparison

| Parameters | W-4S | DUP (4S) | W-7R | DUP (7R) |
|---------------------------------|---------|----------|---------|----------|
| Dissolved Metals (ug/l) | | | | |
| Copper | 65.2 | <1.3 | <1.3 | <1.3 |
| Iron | 76300 | 82500 | 16400 | 15600 |
| Lead | <1.5 | <1.5 | <1.5 | <1.5 |
| Sodium | 1350000 | 1300000 | 3180000 | 2890000 |
| Zinc | 115 | 233 | 127 | 30.8 |
| General Chemistry (mg/l) | | | | |
| pH, SU | 6.55 | N/A | 6.95 | N/A |
| Color, Pt-Co | 2500 | 1500 | 200 | 300 |
| Fecal Coliforms, colonies/100ml | <1.0 | <1.0 | N/A | N/A |
| Fecal Strep, colonies/100ml | <1.0 | <1.0 | N/A | N/A |
| Total Coliforms, colonies/100ml | <1.0 | <1.0 | N/A | N/A |
| Ammonia, Nitrogen | 33.9 | 32.7 | 6.76 | 6.63 |
| Biochemical Oxygen Demand | 41.7 | 41.3 | 7.3 | 7.3 |
| Chemical Oxygen Demand | 611 | 647 | 324 | 333 |
| Chloride | 2600 | 620 | 4700 | 4310 |
| Nitrate | <0.04 | <0.04 | 0.13 | 0.11 |
| Phenol | 0.072 | 0.072 | <0.0035 | <0.0035 |
| Sulfate | 750 | 773 | 490 | 472 |
| Surfactants | 0.81 | 0.83 | 0.23 | 0.38 |
| Total Dissolved Solids | 176 | 174 | 10300 | 9670 |
| Total Organic Carbon | 147 | 150 | 21.7 | 21.9 |

Appendix C
Kin-Buc Landfill Operable Unit 1
Field QA/QC Samples

| Parameters | FB-01 | FB-02 |
|---------------------------------|-------|---------|
| Dissolved Metals (ug/l) | | |
| Copper | 1.3 | <1.3 |
| Iron | 10.8 | 16.5 |
| Lead | 1.5 | <1.5 |
| Sodium | 511 | 4120 |
| Zinc | 17.5 | 2.1 |
| General Chemistry (mg/l) | | |
| pH, SU | | |
| Color, Pt-Co | 10 U | 40 |
| Fecal Coliforms, colonies/100ml | <1.0 | N/A |
| Fecal Strep, colonies/100ml | <1.0 | N/A |
| Total Coliforms, colonies/100ml | <1.0 | N/A |
| Ammonia, Nitrogen | <0.05 | <0.05 |
| Biochemical Oxygen Demand | <3.0 | <3.0 |
| Chemical Oxygen Demand | <3.0 | <3.0 |
| Chloride | 1.0 U | <1.0 |
| Nitrate | 0.11 | 0.20 |
| Phenol | 0.018 | <0.0035 |
| Sulfate | <3.0 | <3.0 |
| Surfactants | <0.05 | <0.05 |
| Total Dissolved Solids | 10 U | 430 |
| Total Organic Carbon | <1.0 | <1.0 |

APPENDIX D
OU2 FIELD QA/QC RESULTS

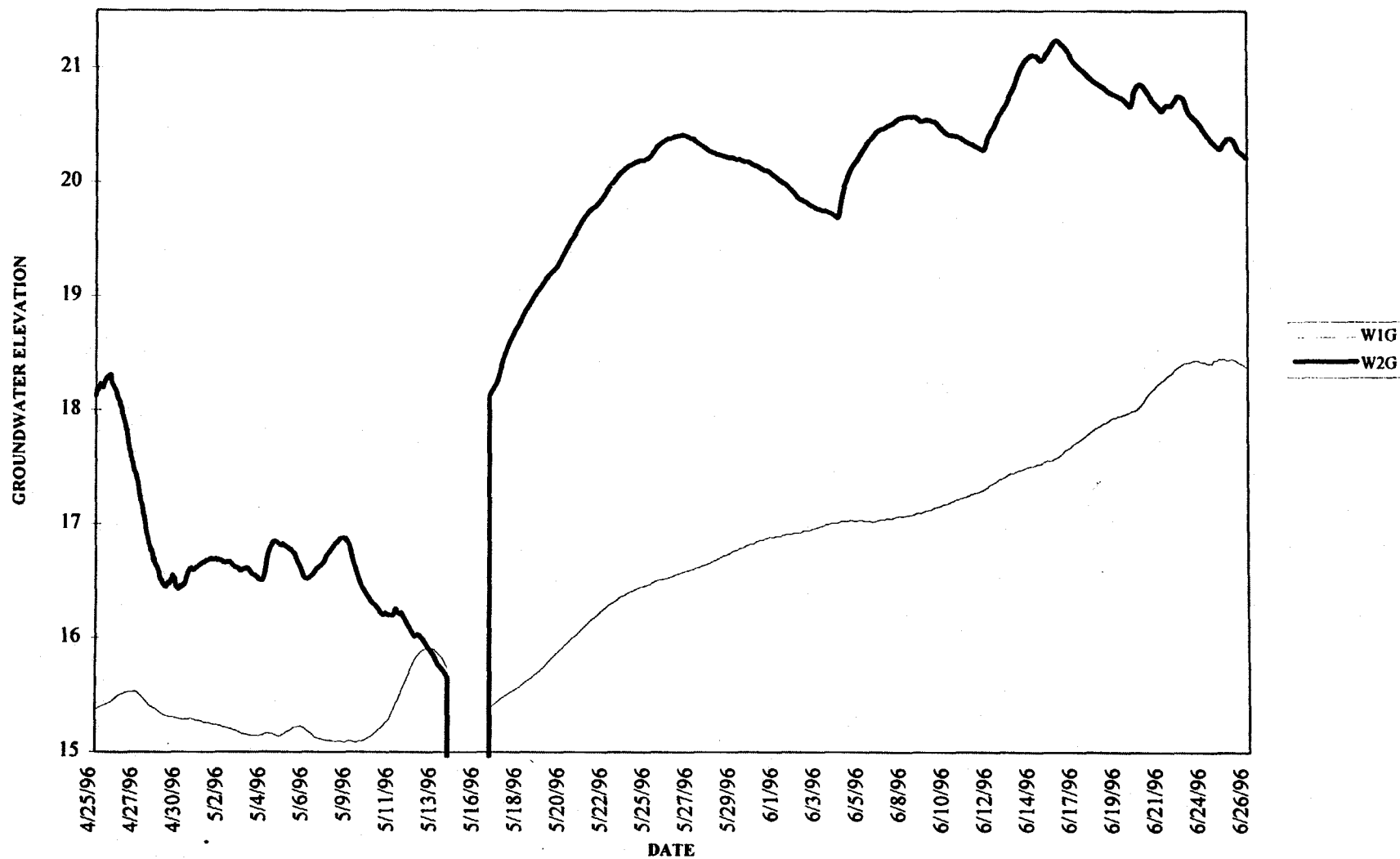
500464

Appendix D
Kin-Buc Landfill Operable Unit 2
Duplicate and Field QA/QC Samples

| Parameters | WE-5S | DUP (5S) | FB-03 |
|---------------------------------|---------|----------|---------|
| Dissolved Metals (ug/l) | | | |
| Copper | 6.4 | 5 | 4.1 |
| Iron | 70700 | 68200 | 80.2 |
| Lead | <1.5 | <1.5 | 2.2 |
| Sodium | 1790000 | 1870000 | 1800 |
| Zinc | 36.7 | 141 | 37.1 |
| General Chemistry (mg/l) | | | |
| pH, SU | 6.57 | N/A | N/A |
| Color, Pt-Co | 1500 | 1500 | 40 |
| Fecal Coliforms, colonies/100ml | 8000 | <1.0 | <1.0 |
| Fecal Strep, colonies/100ml | <1.0 | <1.0 | <1.0 |
| Total Coliforms, colonies/100ml | N/A | <1.0 | <1.0 |
| Ammonia, Nitrogen | 9.42 | 7.69 | <0.05 |
| Biochemical Oxygen Demand | 20.7 | 18.7 | <3.0 |
| Chemical Oxygen Demand | 433 | 488 | <3.0 |
| Chloride | 2100 | 2140 | <1.0 |
| Nitrate | <0.04 | 0.04 | 0.04 |
| Phenol | <0.0035 | <0.0035 | <0.0035 |
| Sulfate | 171 | 171 | <3.0 |
| Surfactants | 0.51 | 0.49 | <0.05 |
| Total Dissolved Solids | 5881 | 6120 | 47 |
| Total Organic Carbon | 128 | 126 | <1.0 |

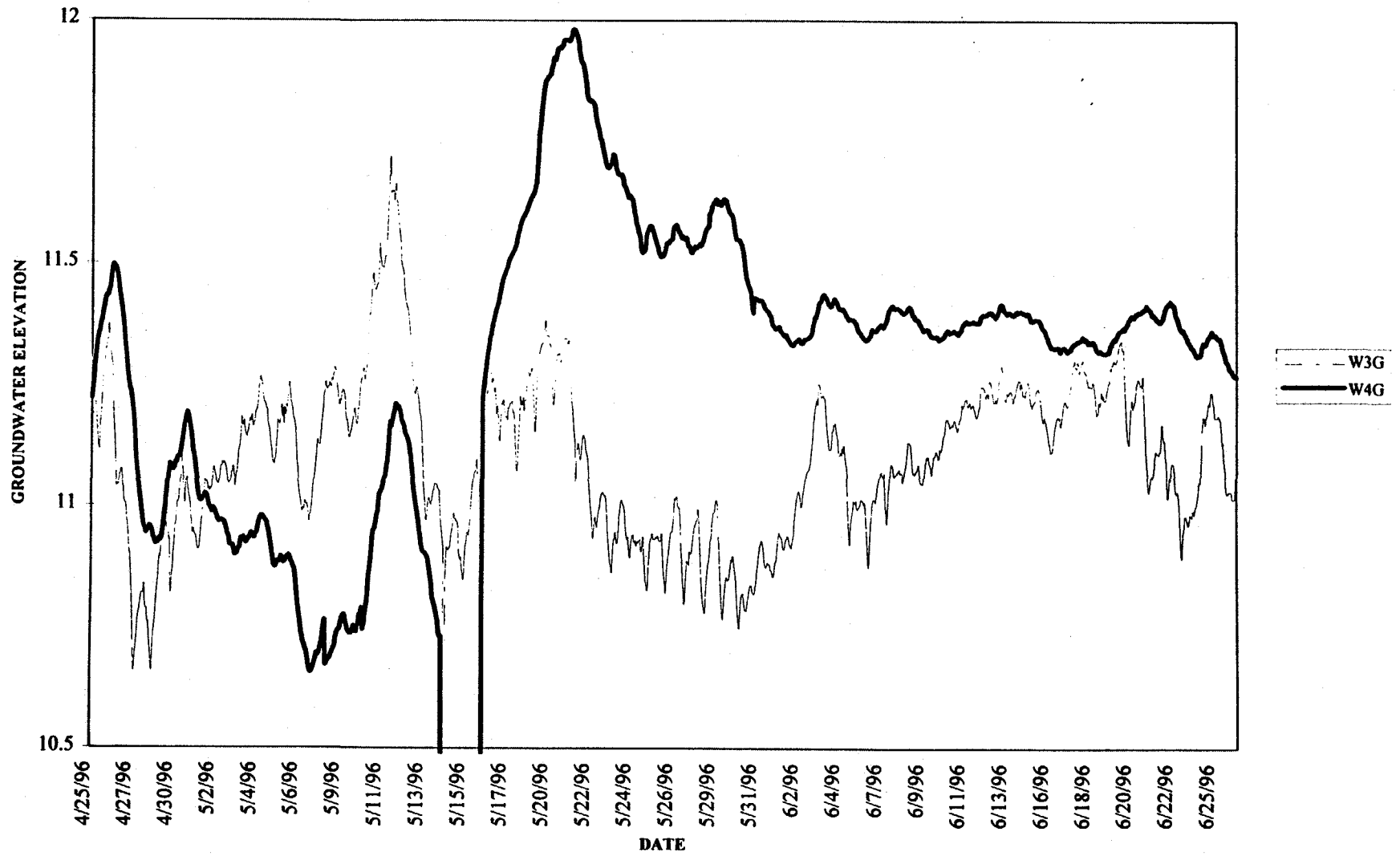
**APPENDIX E
OU1 REFUSE WELLS
CONTINUOUS WATER LEVEL
MONITORING HYDROGRAPHS**

KIN BUC LANDFILL GROUNDWATER ELEVATIONS ACROSS SLURRY WALL
REFUSE UNIT



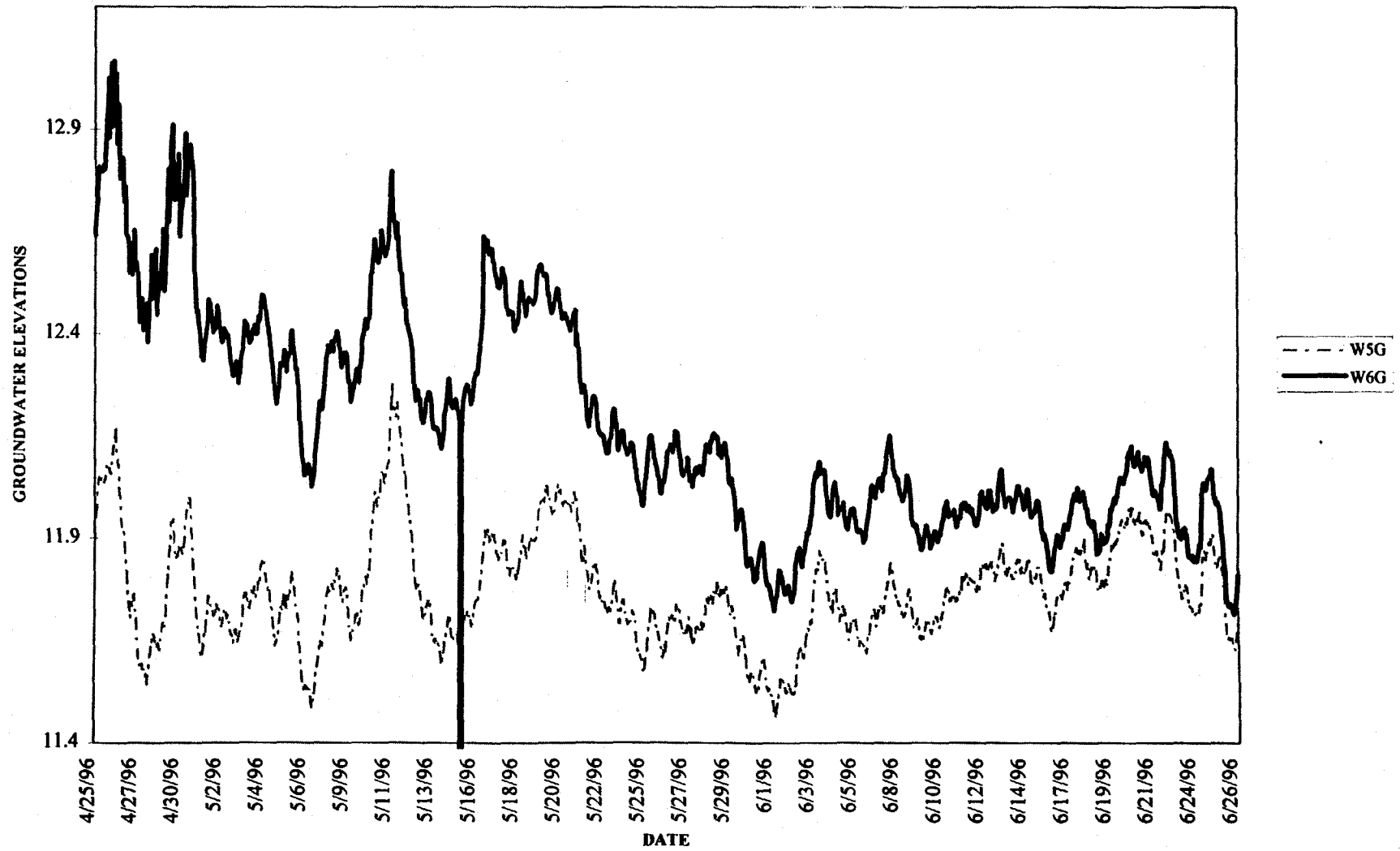
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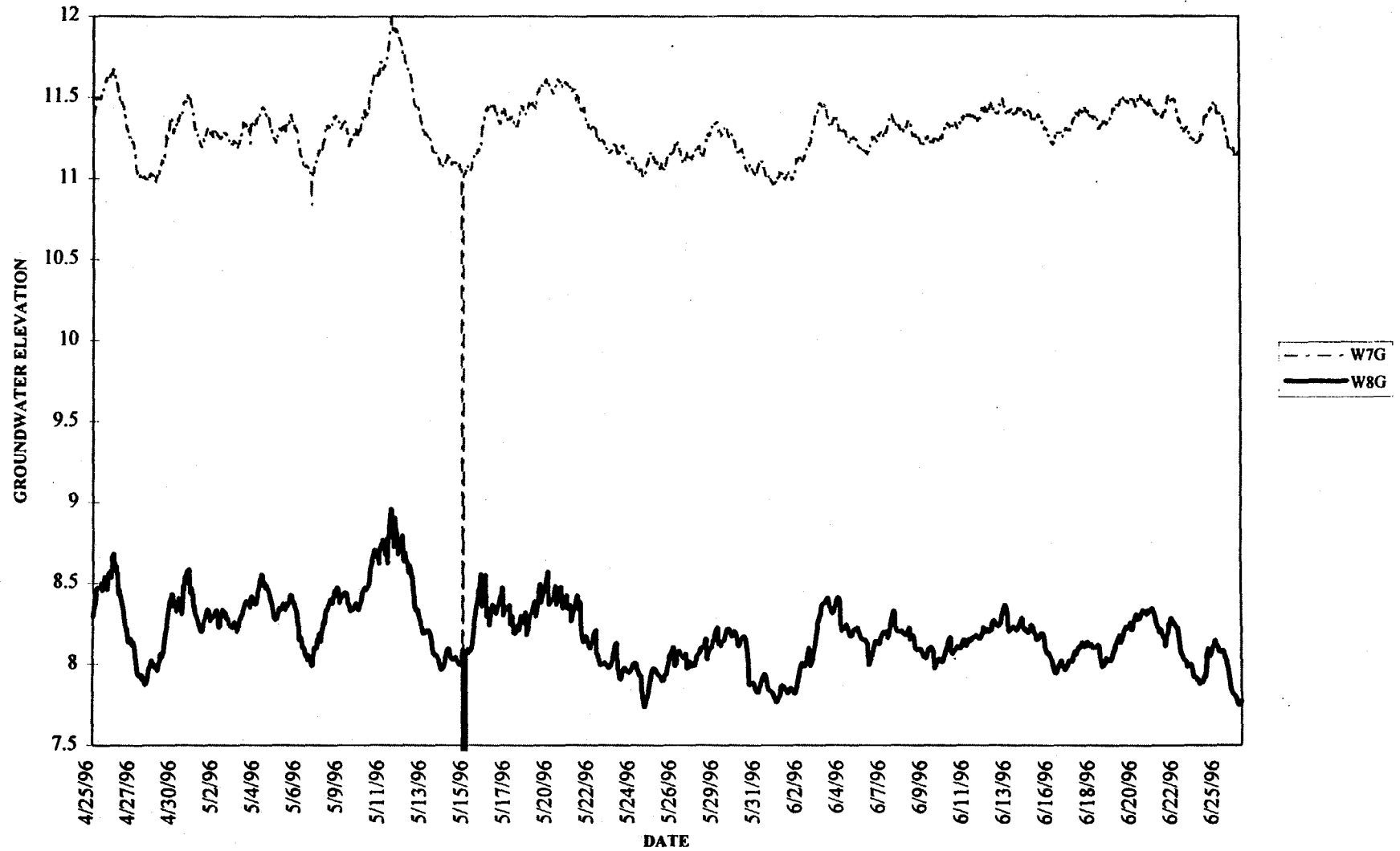
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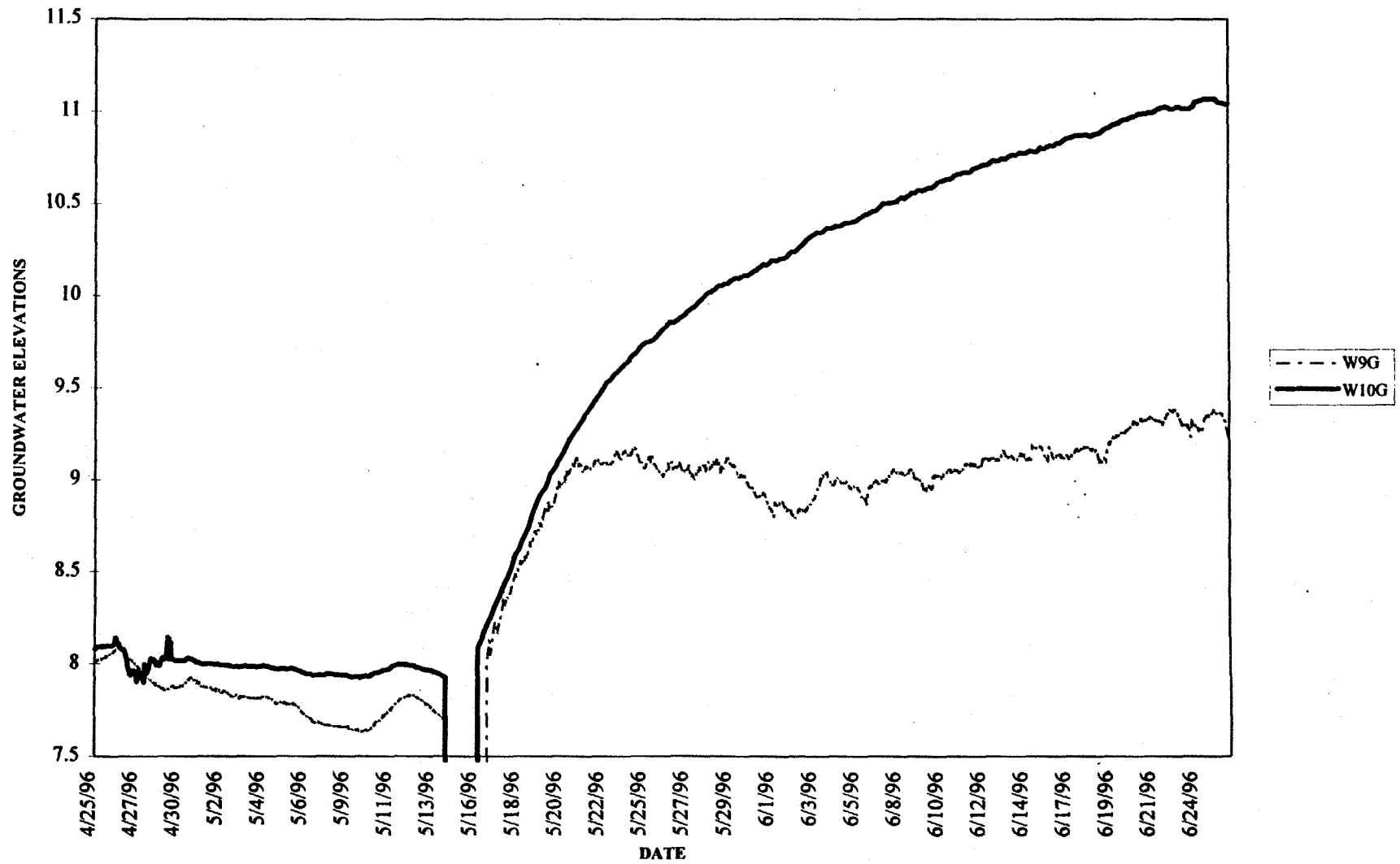
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KIN BUC LANDFILL GROUNDWATER ELEVATIONS ACROSS SLURRY WALL
REFUSE UNIT



500471

KIN BUC LANDFILL GROUNDWATER ELEVATIONS ACROSS SLURRY WALL
REFUSE UNIT

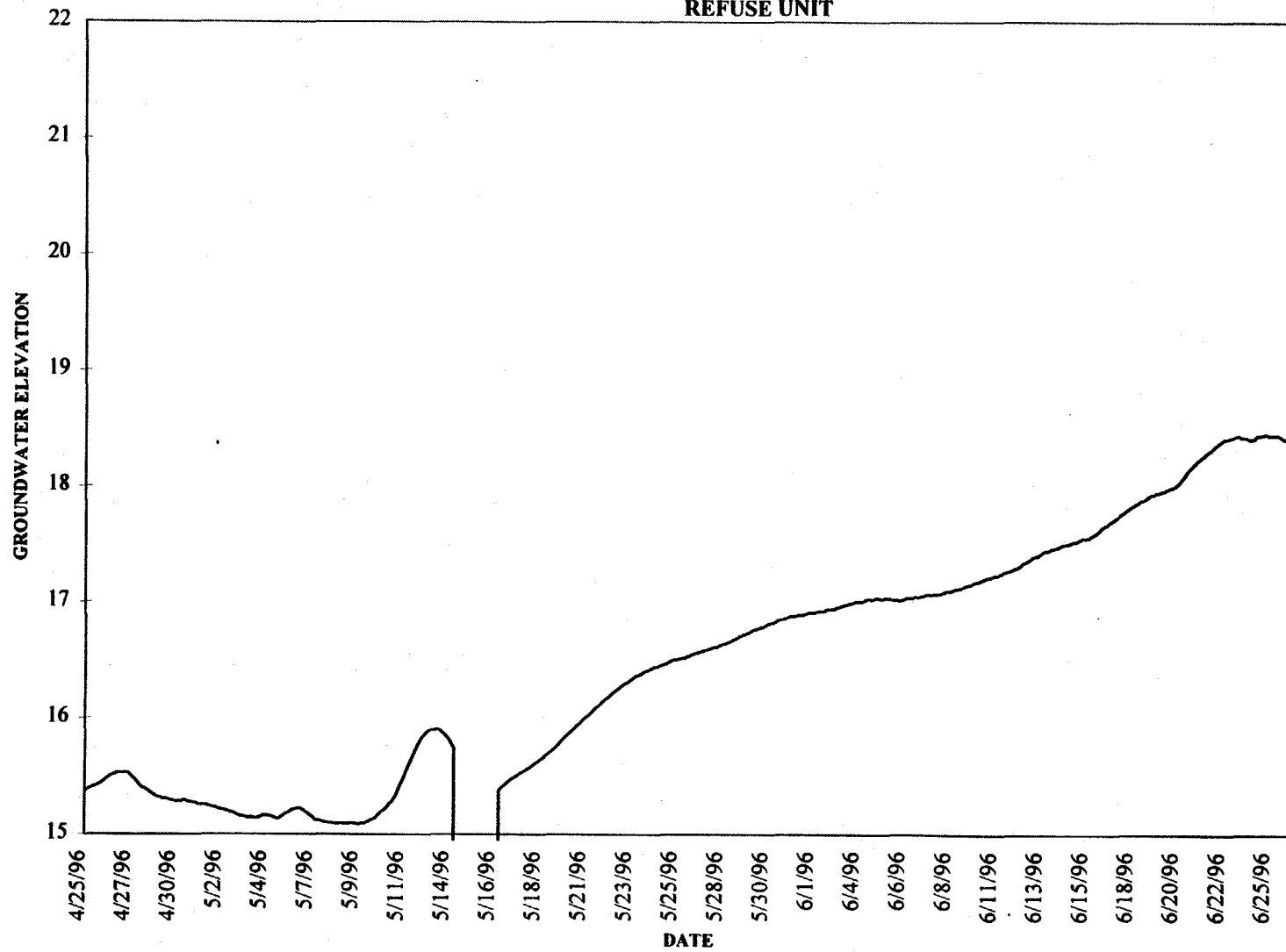


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**APPENDIX F
OU1 WELLS
CONTINUOUS WATER LEVEL
MONITORING HYDROGRAPHS**

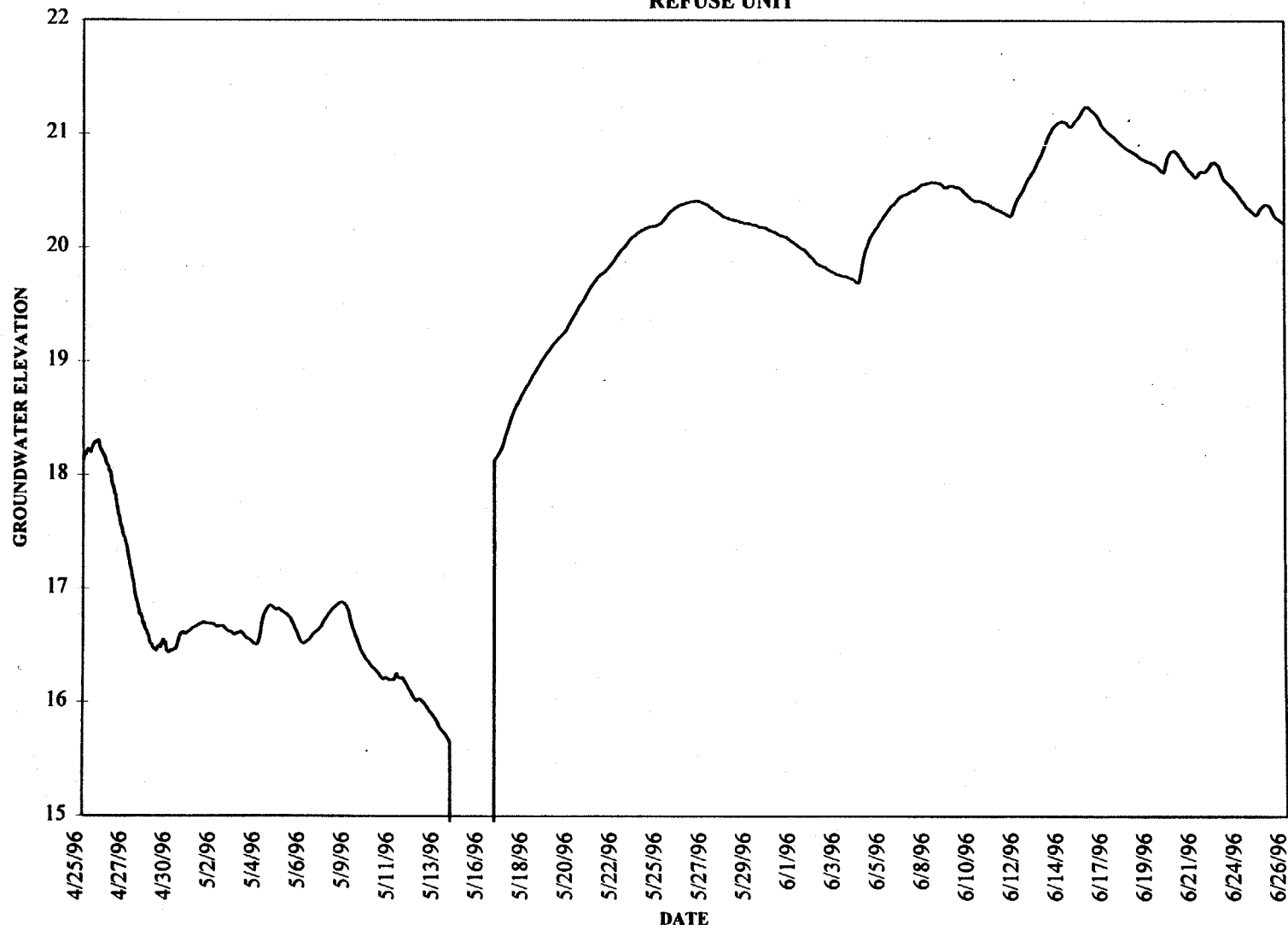
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**KIN BUC LANDFILL GROUNDWATER ELEVATION HYDROGRAPH, W1G
REFUSE UNIT**



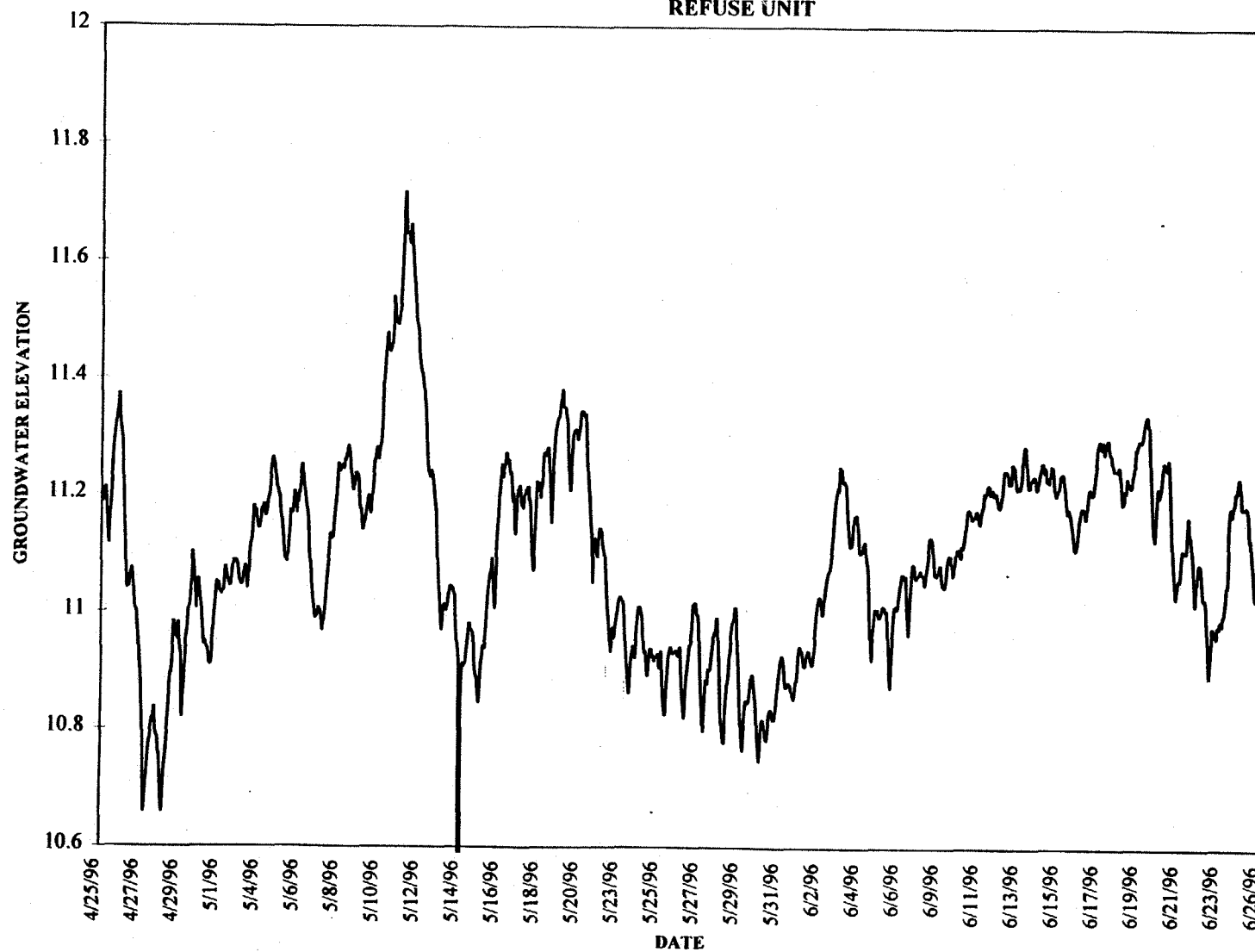
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REFUSE UNIT



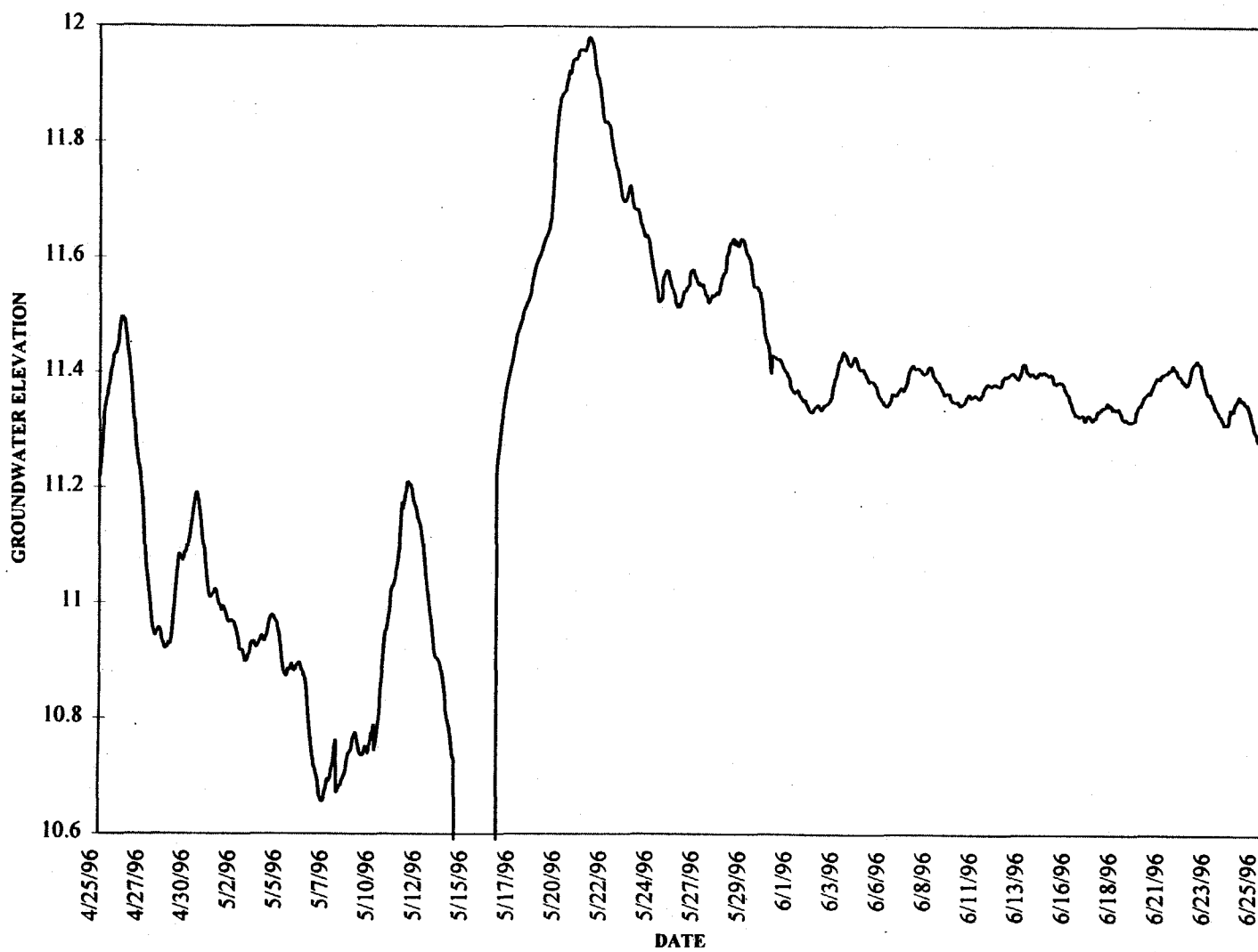
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REFUSE UNIT



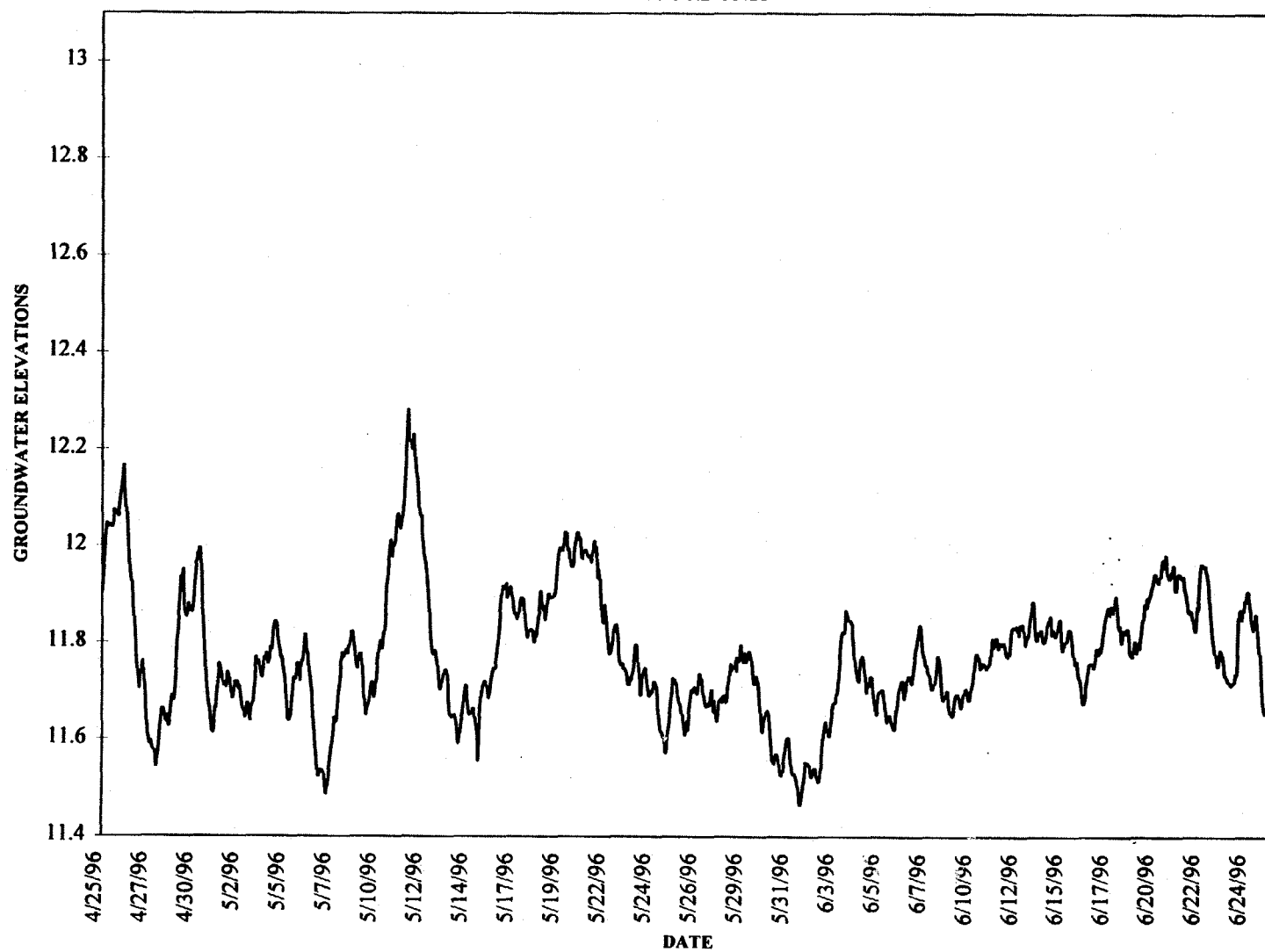
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REFUSE UNIT



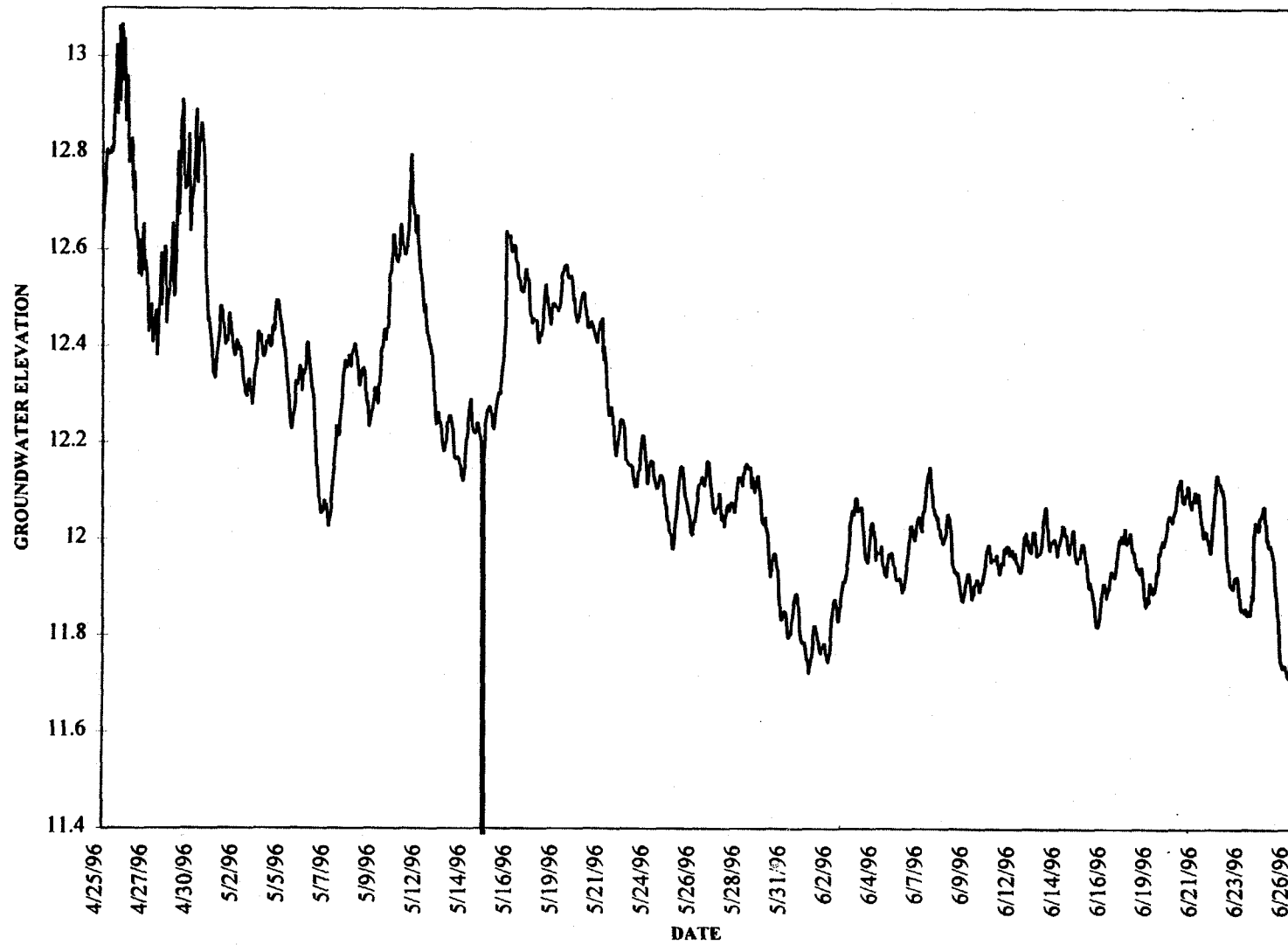
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REFUSE UNIT



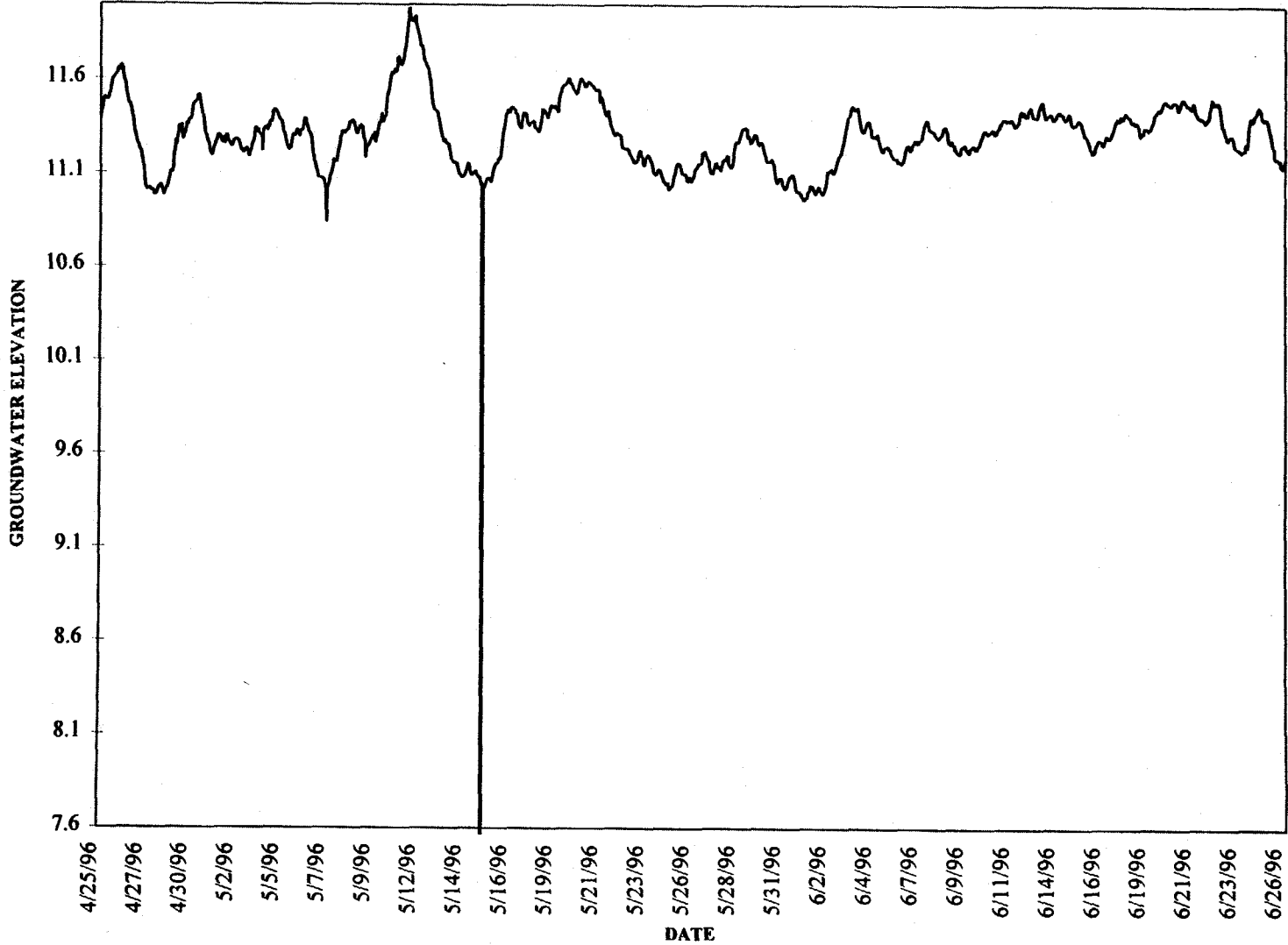
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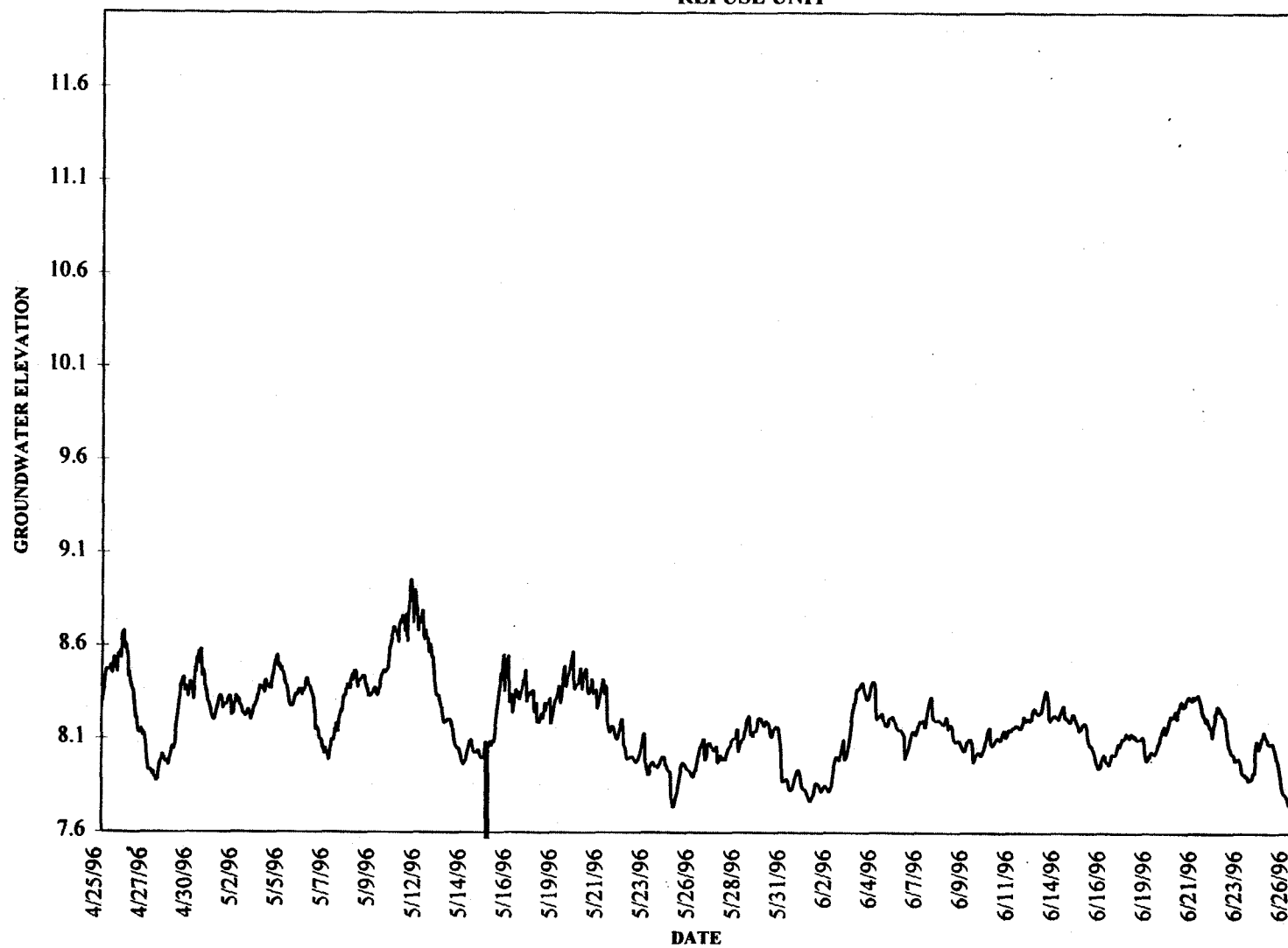
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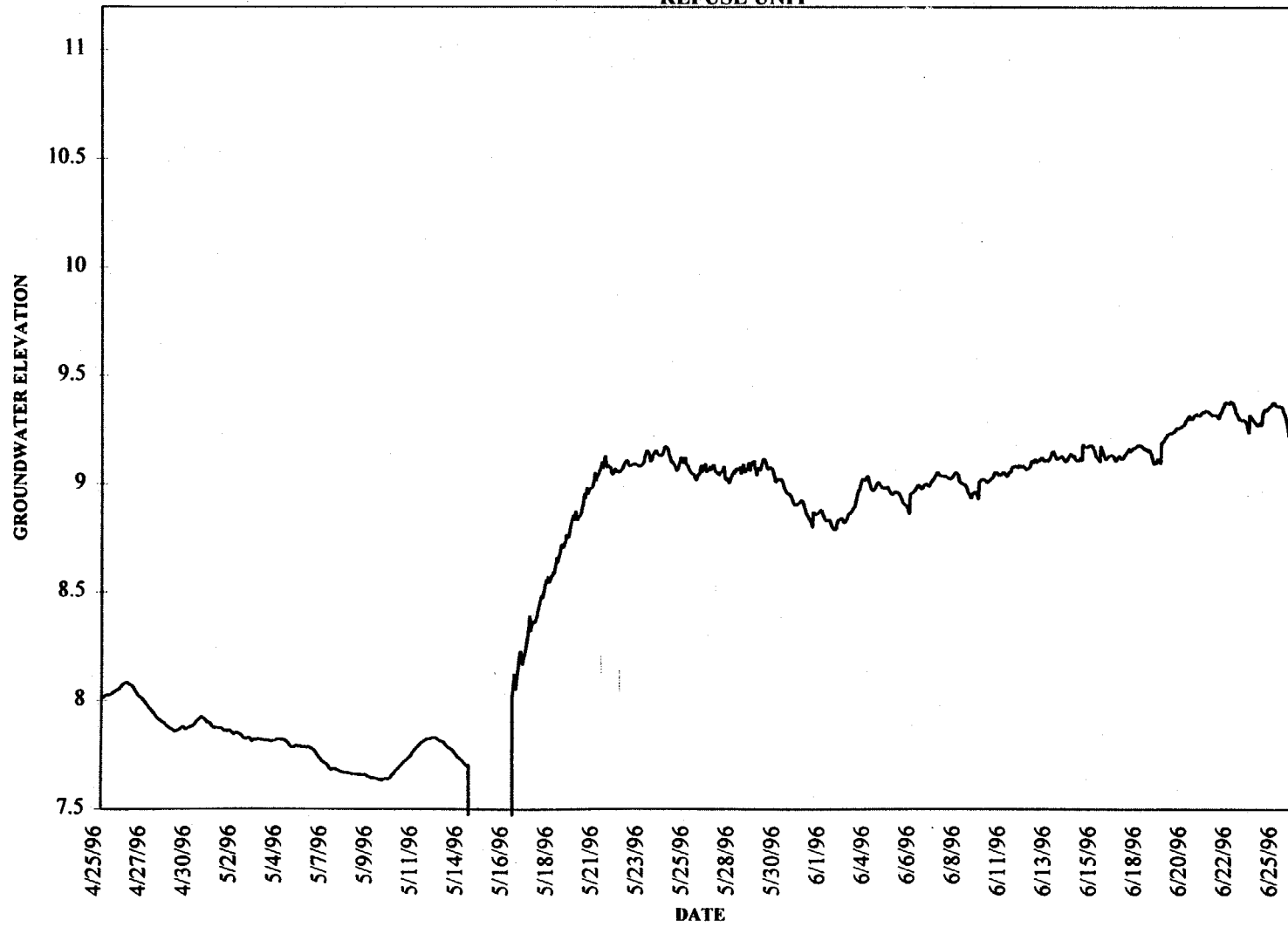
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REFUSE UNIT



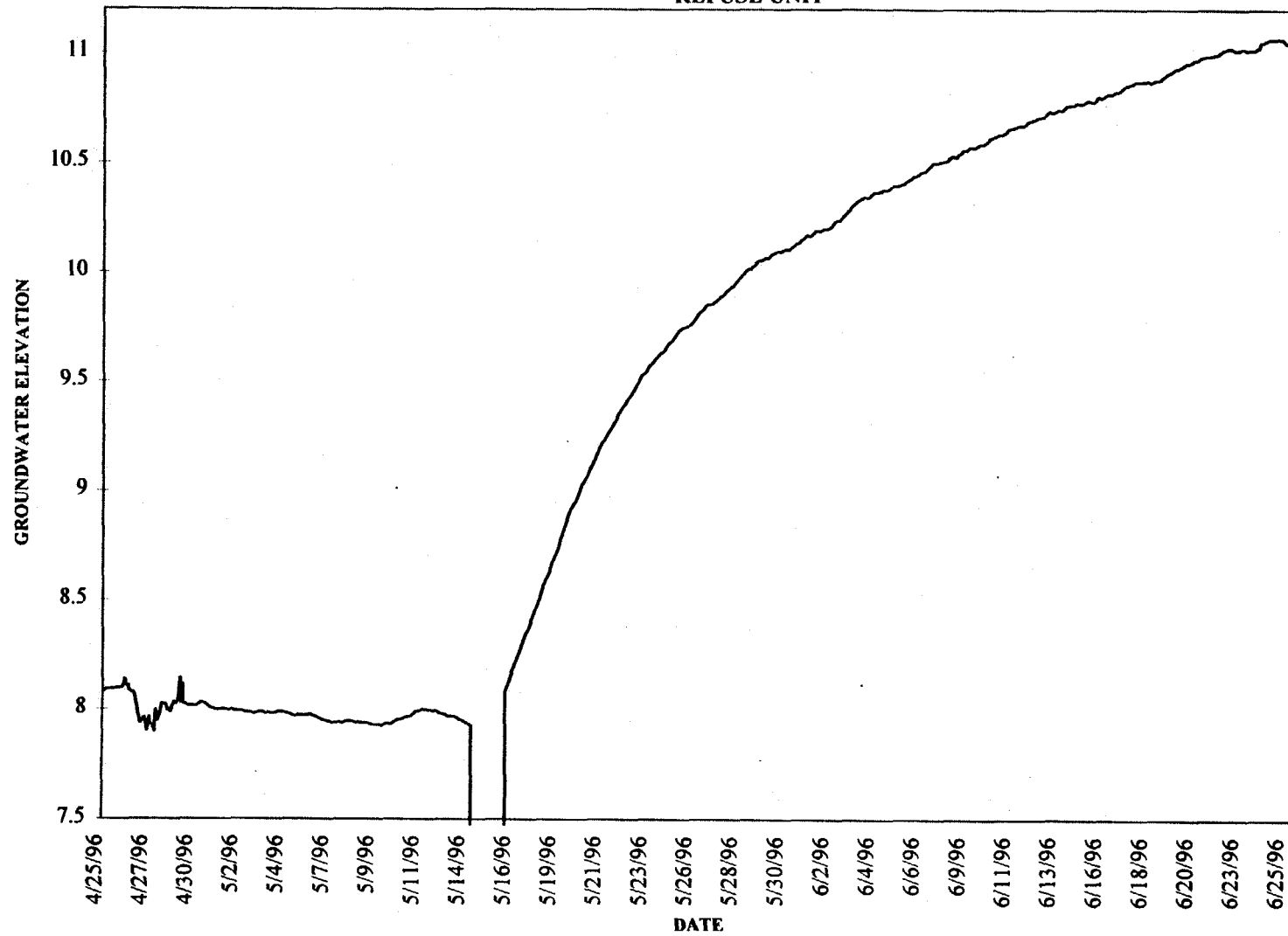
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KIN BUC LANDFILL GROUNDWATER ELEVATION HYDROGRAPH, W9G
REFUSE UNIT



500483

KIN BUC LANDFILL GROUNDWATER ELEVATION HYDROGRAPH, W10G
REFUSE UNIT



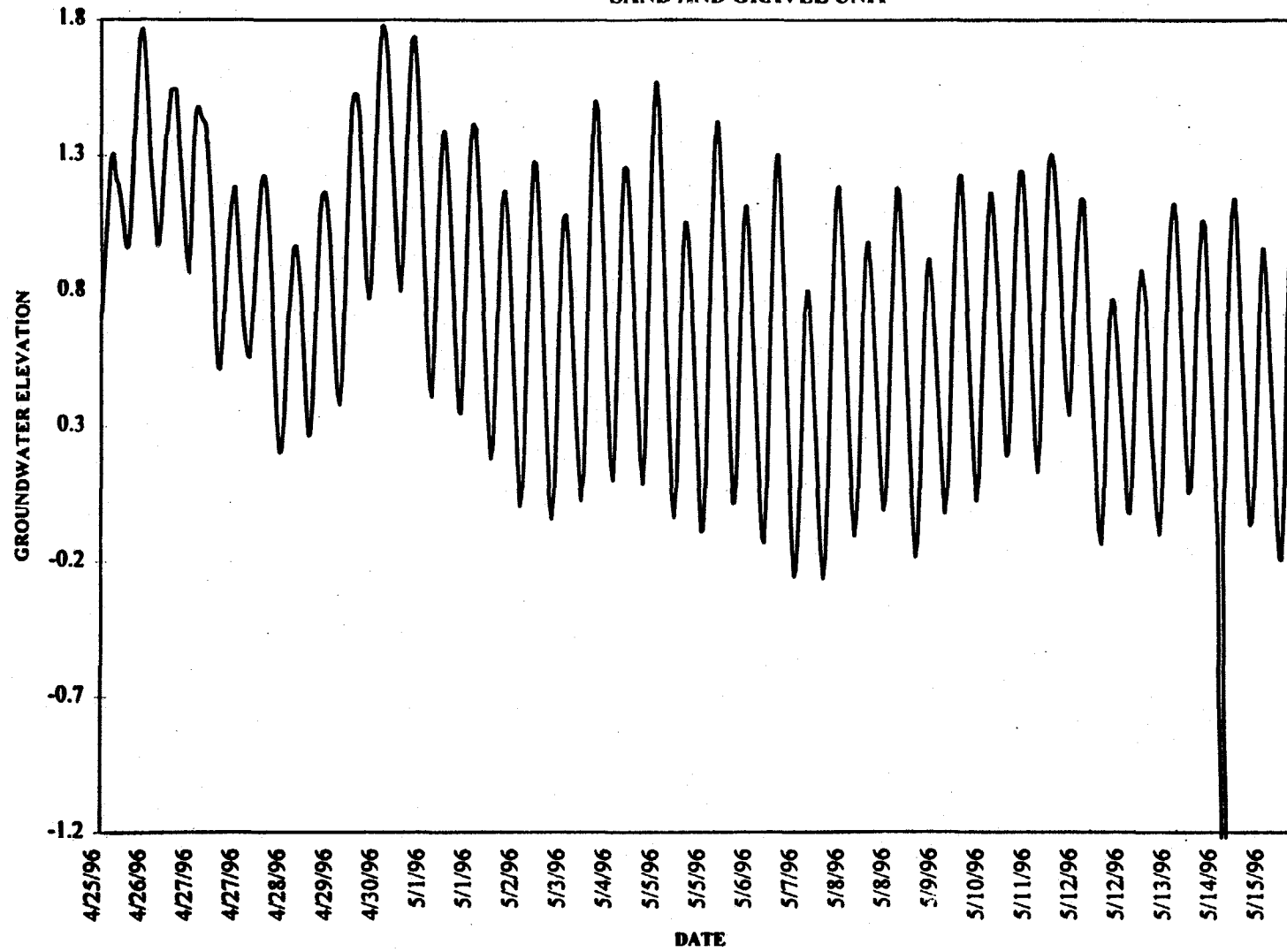
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**KIN BUC LANDFILL GROUNDWATER ELEVATION HYDROGRAPH, W3S
SAND AND GRAVEL UNIT**



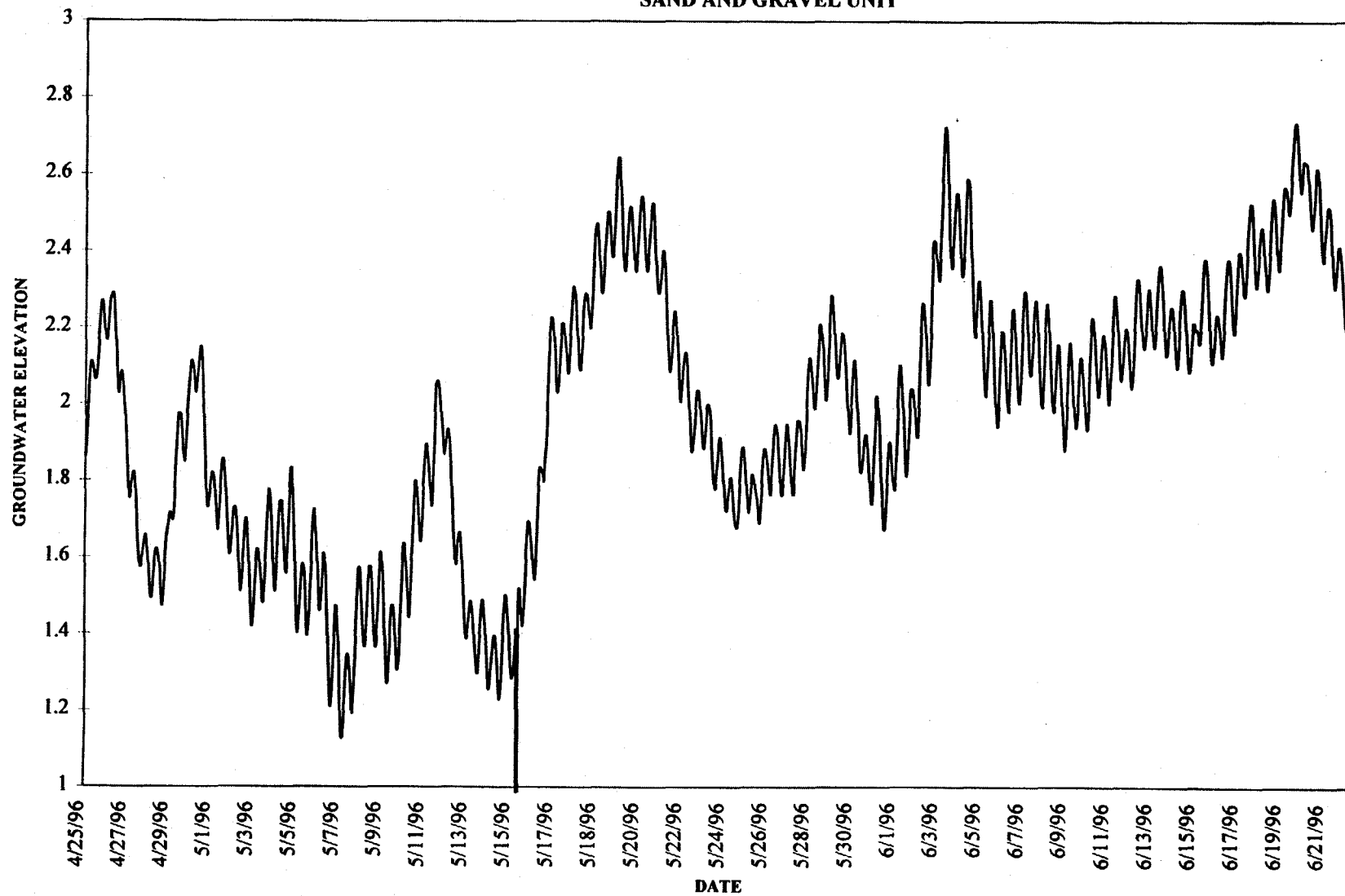
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**KIN BUC LANDFILL GROUNDWATER ELEVATION HYDROGRAPH, W4S
SAND AND GRAVEL UNIT**



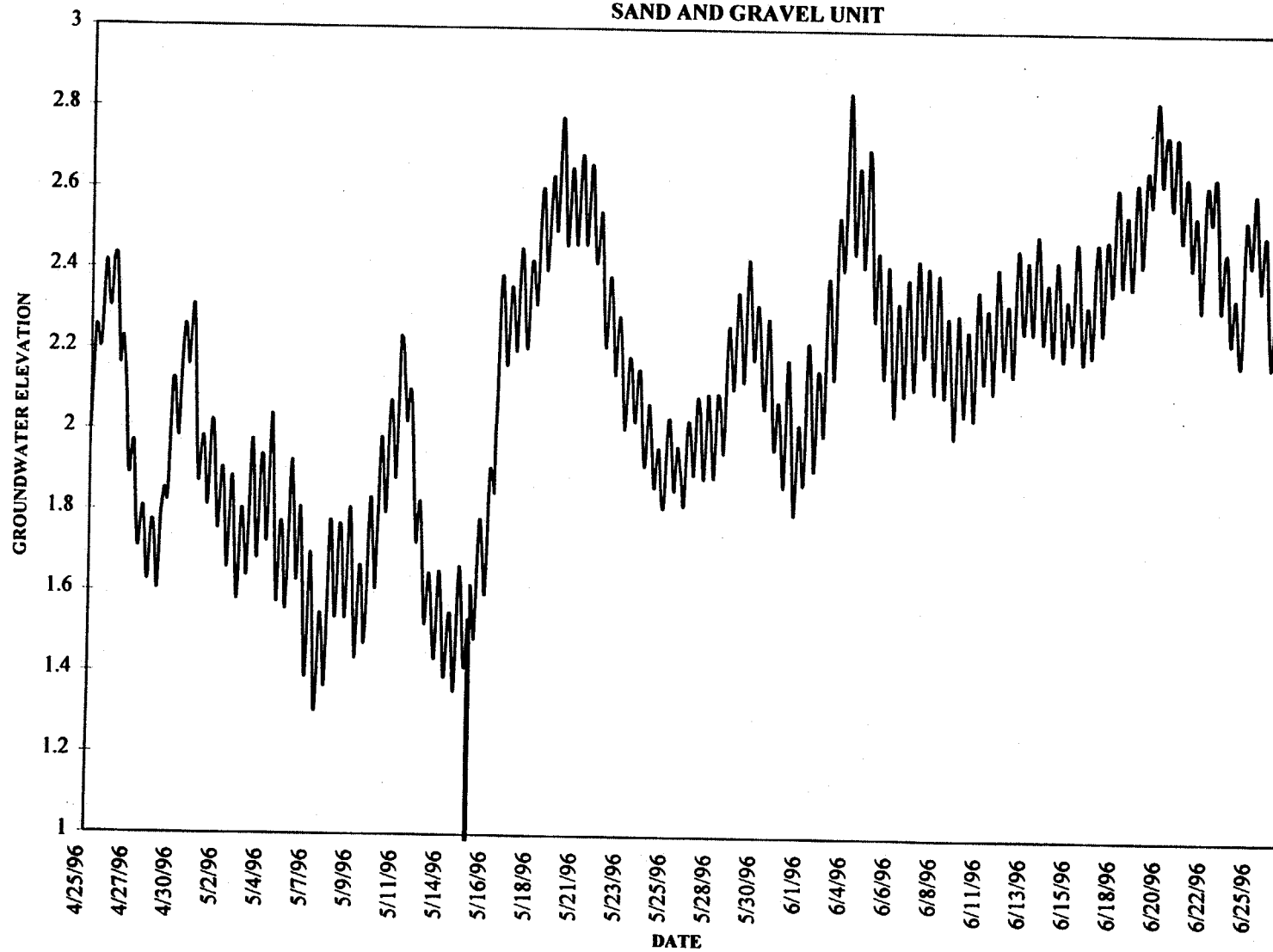
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**KIN BUC LANDFILL GROUNDWATER ELEVATION HYDROGRAPH, W5S
SAND AND GRAVEL UNIT**



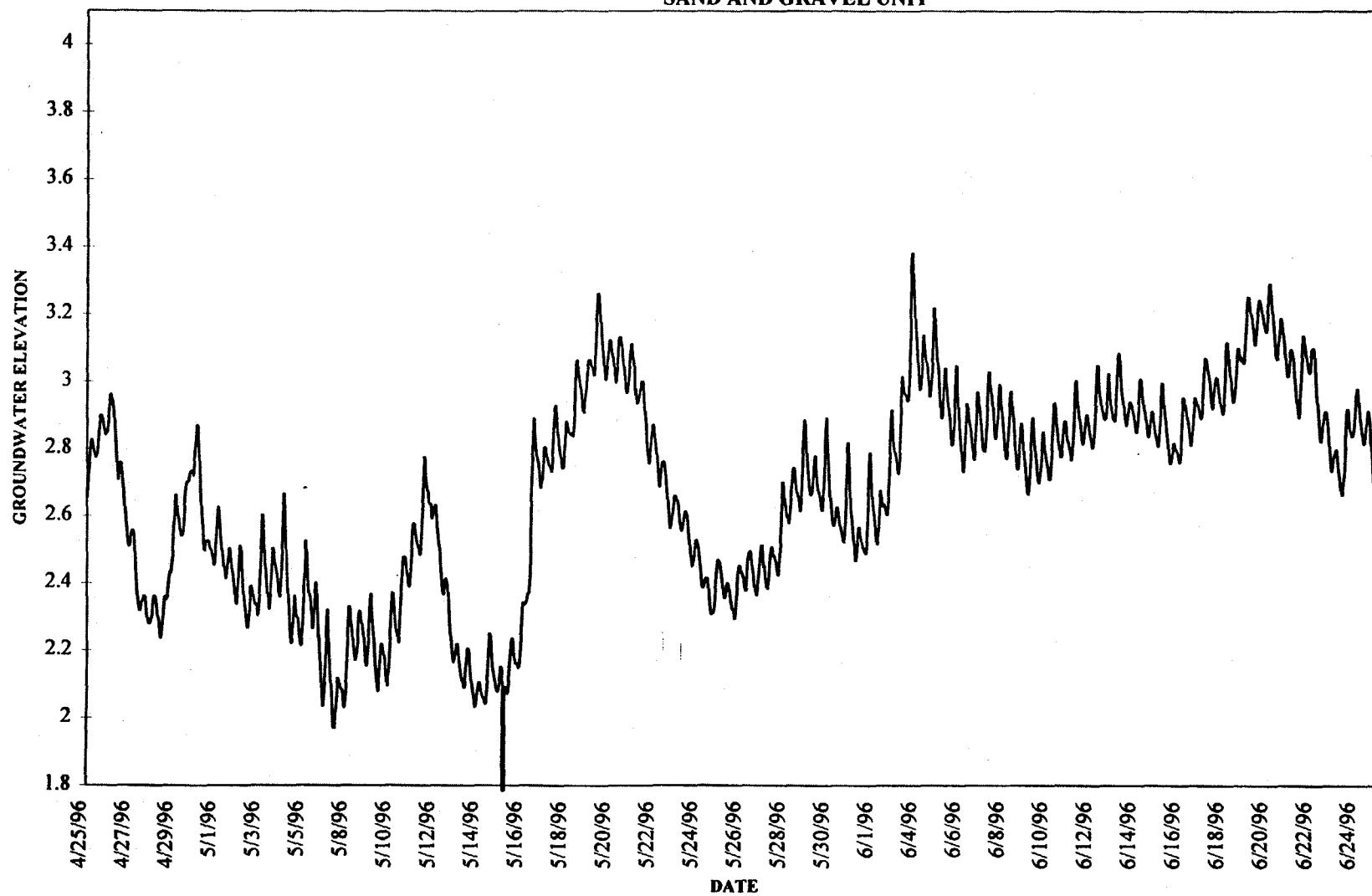
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KIN BUC LANDFILL GROUNDWATER ELEVATION HYDROGRAPH, W6S
SAND AND GRAVEL UNIT



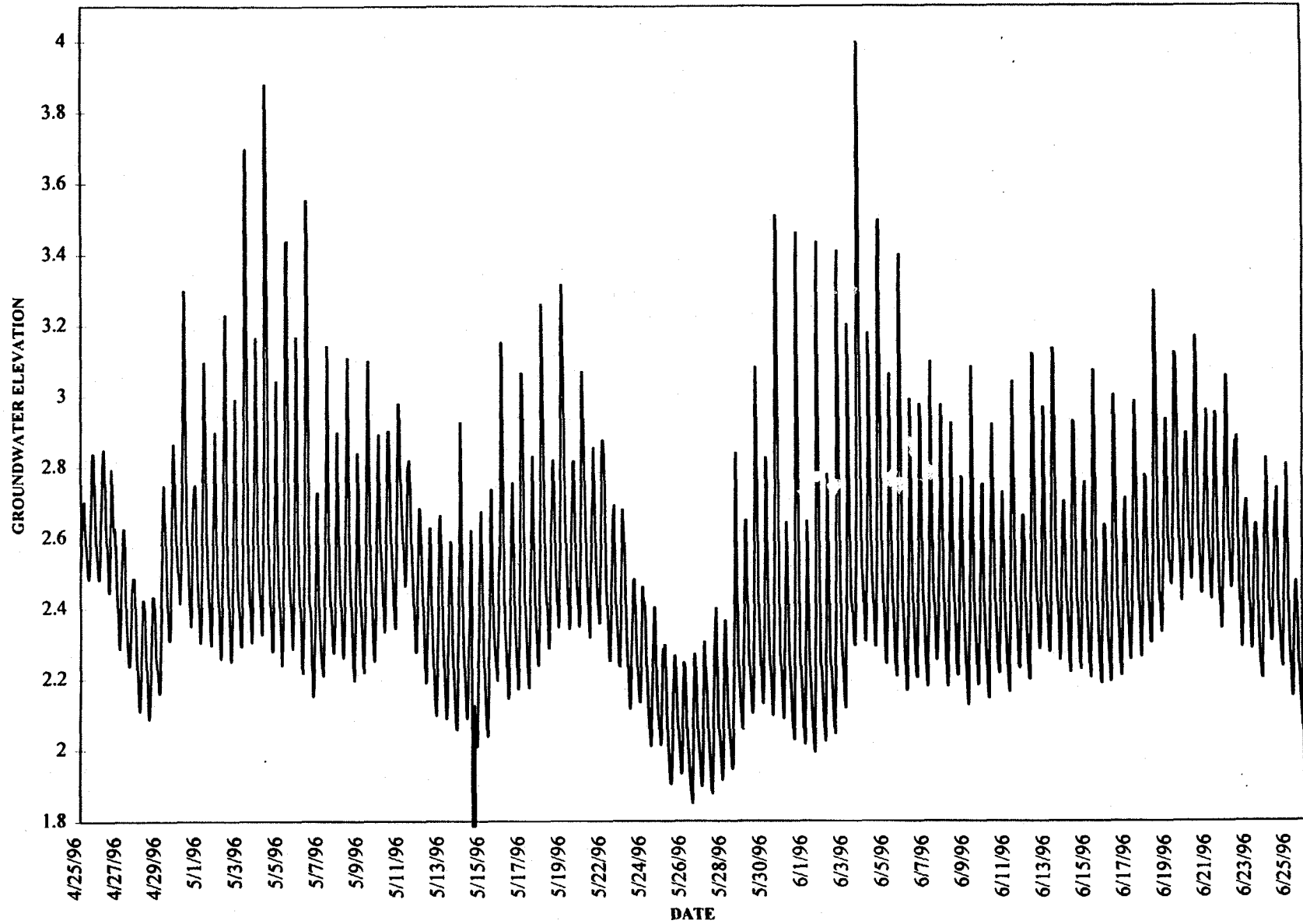
500488

**KIN BUC LANDFILL GROUNDWATER ELEVATION HYDROGRAPH, W7S
SAND AND GRAVEL UNIT**



500489

KIN BUC LANDFILL GROUNDWATER ELEVATION HYDROGRAPH, W8S
SAND AND GRAVEL UNIT



500490

APPENDIX G

**WETLANDS RESTORATION MONITORING
PROGRESS REPORT**

KIN-BUC LANDFILL

OPERABLE UNIT 2

500492

CONTENTS

| | |
|--|------------|
| 1 INTRODUCTION AND GOALS | 1-1 |
| 2 RESTORATION PLAN SPECIFICATIONS | 2-1 |
| 3 MONITORING METHODS | 3-1 |
| 3.1 Transect Plot Sampling | 3-1 |
| 3.2 Fixed Point Photographs/General Observations | 3-1 |
| 3.3 Tidal Gauging | 3-2 |
| 4 MONITORING RESULTS | 4-1 |
| 5 CONCLUSIONS | 5-1 |

TABLE

DRAWING

ATTACHMENT G-1 PLOT SAMPLING DATA SHEETS

ATTACHMENT G-2 SITE PHOTOGRAPHS

ATTACHMENT G-3 FIELD MEMO

1 INTRODUCTION AND GOALS

In July 1996, EMCON conducted wetland monitoring activities for the wetland restoration program at the Kin-Buc Landfill, Operable Unit 2 (OU2/Edmonds Creek Marsh Area) as set forth in the Wetland Restoration and Maintenance (R/M) Plan for the site. Monitoring activities are intended to fulfill the requirements of Appendix C - Wetlands Monitoring, of the Kin-Buc Landfill Superfund Site Operations and Maintenance Manual (Wheelabrator EOS, 1995).

The Restoration Plan required the planting of cordgrass (Spartina alterniflora) in excavated Zones 1 through 5 of OU2 ECMA in an attempt to restore the affected wetland community to pre-remedial action conditions. The ultimate goal of the restoration program is to achieve 80 percent vegetative cover over the next 5 years. As presented in the following report, replanting with cordgrass has not been successful.

This report presents the findings of the wetland monitoring activities for the first half of 1996. Attachment G-1 includes the plot sampling data sheets, and Attachment G-2 presents the fixed point photographs that document site conditions. Attachment G-3 presents a list of wildlife and plant species found at the site. Drawing No. 2 shows the location of the transects where plot sampling was conducted and the fixed point photograph locations.

2 RESTORATION PLAN SPECIFICATIONS

The restoration plan specifications were developed to enhance the establishment of marsh plant communities as quickly as possible, which reflected the original marsh plant community prior to the invasion of phragmites. Monitoring was originally intended to primarily document the re-establishment of cordgrass, but has been modified to document the percent vegetative cover of all species in the sample plots. Monitoring actions are limited to the observance of the planted areas of cordgrass and the establishment of other opportunistic species in these areas.

The persistence of the planted wetland areas does not depend upon a consistency of wetland community species composition as initially established on the site. Rather, marshes are among the most dynamic of landscape features and their plant community assemblages reflect such temporal change. Subsequently, the species composition of the planted areas will be variable. The influence of climatic variation, the natural colonization by native plants, and the natural development of site wetland hydrology and nutrient regimes, will lead to a wetland that differs in anticipated plant composition. Maintenance and management of the site is directed toward establishing a natural wetland community over time.

Maintenance of the restoration area vegetation is heavily restricted in the long term without a marsh-wide program to control common reed. Maintenance efforts will be limited to supplemental plantings.

3 MONITORING METHODS

3.1 Transect Plot Sampling

Monitoring inspections of the restoration areas are to be performed two times a year during the first three years, and annually for the fourth and fifth years after completion of restoration. A transect plot method of sampling is being used to assess total percent vegetative cover. Vegetative cover results are provided in Table G-1. The transect extends from shore to shore perpendicular to water flow. Some repositioning of transect plots was required and is indicated in Table G-1. Permanent transects were previously established at the site by the use of iron bars. Three replicate transects per excavation zone were designated. At each location, three, 1 meter square plots were established along the bank gradient. This monitoring technique allows for direct comparisons of vegetation along elevation gradients. The plot sampling data sheets are provided as Attachment G-1. Three transects with replicate plots along the elevation gradient will supply enough data to develop a statistical comparison. All species observed in the plot will be monitored for a period of 5 years.

3.2 Fixed Point Photographs/General Observations

Fixed photograph location points were established upstream and downstream of each zone and at each transect. The photographs are provided as Attachment G-2. Photographs will be taken from the same point, and in the same direction during every monitoring period. Additional random points were selected upon completion of the restoration such that location and number of photographs will be sufficient to cover the entire restoration area. Physical characteristics of the site remediation relative to wetland structure and function, will be assessed by visual observation to determine impacts to the marsh from erosion, sedimentation, runoff, or wildlife damage.

During wetland monitoring activities, including plot sampling and photography, general observations of flora and fauna species throughout the ECMA were noted. The species encountered and habitat type were recorded. The results of these observations can be found as Attachment G-3.

3.3 Tidal Gauging

Tidal gauging at either manual staff locations or electronic continuous water level installations installed as stilling wells was not initiated during this second quarter 1996 wetlands monitoring activities.

4 MONITORING RESULTS

Table G-1 presents total percent vegetative cover results for each sample plot. The presence of cordgrass was not documented at any transect plot. Unconsolidated sediments and mudflat habitat were observed throughout the excavated zones. Ongoing construction activities are occurring in the vicinity of Zone 3 and have impacted some wetland habitat.

A total of approximately 3,800 cordgrass (Spartina alterniflora) plugs were planted in July 1995. As indicated, establishment of cordgrass has met with very limited success in the excavated zones. Other native, opportunistic species, including dwarf spike rush (Eleocharis parvula), Salt Hay Grass (Spartina patens), and Salt Marsh Fleabane (Pluchea purpurascens) are re-colonizing the planted areas. Excellent mud flat habitat has also been established in certain areas of all the excavated zones. Dominant stands of phragmites in the planted areas are not apparent at this point in the monitoring program.

5 CONCLUSIONS

The original planting program conducted in July 1995 appears to have had limited success in establishing new areas of cordgrass. The excavated zones appear to have sustained substantial plant mortality. The unconsolidated nature of the sediments remaining after excavation activities, harsh winter weathering conditions, and tidal action has apparently limited cordgrass establishment. Ongoing construction activities in the vicinity of Zone 3, and local wildlife feeding in Zones 4 and 5, also appear to have contributed to destruction of cordgrass.

Although replanting success appears to have failed in the attempt to establish cordgrass communities, the overall appearance of the ECMA has been enhanced. Patchy interspersions of several plant species were noted outside of the sampling plots, creating a diverse wetland ecosystem. Wildlife appeared to be somewhat more abundant than previously noted with utilization by a good number of species. Specifically, fiddler crabs were noted in excellent and hardy abundance, while other avian species were observed to be foraging in non phragmites or mudflat habitats (i.e., salt marsh fleabane areas). A list of species observed during the field sampling are presented in Attachment G-3.

Current monitoring activities are not solely directed toward the establishment of cordgrass (Spartina alterniflora) in the excavated zones. Other native, non-phragmites, opportunistic species (i.e., Eleocharis parvula) were observed to be recolonizing planted areas and have value to various avian species. The control of common reed into the newly planted wetland is being attempted by allowing the natural process of tidal flushing. No manual or chemical control measures were, or will be, implemented.

At this point in time, no corrective action (such as replanting) is recommended for the site. Natural processes should be allowed to continue to naturally establish a plant community which can sustain the current dynamic conditions present at the site. Continued monitoring will be necessary to further evaluate the program goals.

TABLE

Table G-1
Kin-Buc Landfill
Operable Unit 2 - ECMA
Total Percent Vegetative Cover By Plot

| Transect | Plot Number | Percent Cover |
|--------------------------|------------------|---------------|
| Zone 1 | | |
| KB1-1EBT ⁽¹⁾ | 1 | 20 |
| | 2 | <5 |
| | 3 ⁽²⁾ | <5 |
| KB1-4WBT | 1 | 0 |
| | 2 ⁽²⁾ | 0 |
| | 3 | 20 |
| KB1-6WBT | 1 | 2 |
| | 2 ⁽²⁾ | <1 |
| | 3 | <5 |
| Zone 2 | | |
| KB2-8WBT | 1 | <5 |
| | 2 | 0 |
| | 3 | 0 |
| KB2-10WBT | 1 | <5 |
| | 2 | <1 |
| | 3 | <1 |
| KB2-12WBT | 1 | 20 |
| | 2 | <5 |
| | 3 | <1 |
| Zone 3 | | |
| KB3-13EBT ⁽³⁾ | 1 | 50 |
| | 2 | <5 |
| | 3 | <5 |
| KB3-18WBT | 1 | 10 |
| | 2 | 0 |
| | 3 | 0 |
| KB3-16WBT ⁽⁴⁾ | 1 | <2 |
| | 2 | <1 |
| | 3 | <1 |

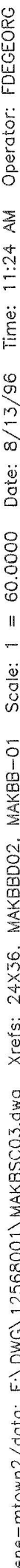
| Transect | Plot Number | Percent Cover |
|--------------------------|-------------|---------------|
| Zone 4 | | |
| KB4-20WBT | 1 | 45 |
| | 2 | 50 |
| | 3 | 35 |
| KB4-22WBT ⁽⁵⁾ | 1 | 20 |
| | 2 | 30 |
| | 3 | 30 |
| KB4-24WBT ⁽⁵⁾ | 1 | 0 |
| | 2 | 0 |
| | 3 | <1 |
| Zone 5 | | |
| KB5-26WBT | 1 | <1 |
| | 2 | 10 |
| | 3 | 0 |
| KB5-28WBT | 1 | <5 |
| | 2 | 0 |
| | 3 | 0 |
| KB5-30WBT | 1 | 30 |
| | 2 | <1 |
| | 3 | <1 |






Notes:

- (1) Weathering obliterated transect plot stake; plot sampling accomplished at east bank transect stake.
- (2) Low tide channel prohibits plot placement so plot repositioned on opposite bank and sampling continued up vegetated bank.
- (3) Construction activities cover transect plot stake; plot sampling accomplished at east back transect stake.
- (4) Construction activities cover transect plot stake; plot sampling accomplished at transect photograph location.
- (5) Indicates parallel plot sampling method.

DRAWING

500503



| LEGEND: | | LEGEND: | |
|---|-----------------------|---|--|
| + 4.0 | LOCATION ELEVATION |  | JERSEY CENTRAL POWER AND LIGHT (JCP&L) HIGH TENSION POWER AND 100' WIDE UTILITY EASEMENT UTILITY EASEMENT LIMITS |
| (SA) | SPARTINA ALTERNIFLORA | ---- | APPROXIMATE PROPERTY LINE |
| (SP) | SPARTINA PATENS | ---- | APPROXIMATE WETLANDS LIMIT |
| (SC) | SPARTINA CYNOSUROIDES | ---- | APPROXIMATE SPRING HIGH TIDE LIMITS (EL. 7.5) |
| (MM) | HIBISCUS MOSCHEUTOS | ---- | APPROXIMATE 100 YEAR TIDE LIMITS (EL. 12.1) |
| (TA) | TYPHA ANGUSTIFOLIA | ---- | PROPOSED OPERABLE UNIT 1 SLURRY WALL ALIGNMENT |
|  | BELT TRANSECTS |  | LIMITS OF EXCAVATION (PCB CONCENTRATION EXCEEDING 5 PPM) |
|  | PHOTOGRAPH LOCATIONS |  | SPARTINA ALTERNIFLORA REPLANTING LOCATION |

REFERENCES:

1. THIS MAP (DRAWING NO. 385003-E15) IS TAKEN FROM ITS CORPORATIONS' 1995 WETLANDS RESTORATION MONITORING REPORT KIN-BUC LANDFILL, OPERABLE UNIT 2 AND IS COMPILED FROM INFORMATION PROVIDED BY ATLANTIS AERIAL SURVEY CO., INC. OF BUDD LAKE, NJ. THE TOPOGRAPHIC INFORMATION IS BASED ON NGVD 1929 AND WAS FLOWN ON MARCH 19, 1990. THE GRID INFORMATION SHOWN IS BASED ON NAD 1983.

2. IT CORPORATION, EDISON, JOB NO. 529634003 AND WEHRAN-EMCON NORTHEAST JOB NO. 03525-3D, DRAWING NO. 385004-05-3, DATED: 6/1/93, SCALE 1"=100'.



ATTACHMENT G-1
PLOT SAMPLING DATA SHEETS

500505

**EMCON**

PLOT SAMPLING DATA SHEET

Date: 7/18/96Time: 1610Personnel: D. Birstine / D. TompkinsProject: Kimbac 12568-001.000Location: ECWA 042Transect: KBI-1EBT

| plot number | species observed | percent cover |
|-------------|------------------|---------------|
| 1 | reed | 20 |
| | salt hay grass | 21 |
| | | |
| | | |
| | | |
| total | | 20 |

| plot number | species observed | percent cover |
|-------------|------------------|---------------|
| 2 | reed | 45 |
| | | |
| | | |
| | | |
| | | |
| total | | 45 |

| plot number | species observed | percent cover |
|-------------|------------------|---------------|
| 3 | reed | |
| | | |
| | | |
| | | |
| | | |
| total | | 45 |

comments/observations:

① couldn't locate KBI-2WBT

② plot #3 on opposite vegetated bank

③ photos 101 PL
102 PL



EMCON

PLOT SAMPLING DATA SHEET

Date: 7/18/96
Time: 1600
Personnel: D. Bierstine / D. Tompkins
Project: Kimber 11388-001.000
Location: ECWA 002
Transect: KB1-4 WBT

| plot number | species observed | percent cover |
|-------------|------------------|---------------|
| 1 | mud flat | |
| | | |
| | | |
| | | |
| | | |
| | | |
| total | | 0 |

| plot number | species observed | percent cover |
|-------------|------------------|---------------|
| 2 | mud flat | |
| | | |
| | | |
| | | |
| | | |
| | | |
| total | | 0 |

| plot number | species observed | percent cover |
|-------------|------------------|---------------|
| 3 | reed | 20 |
| | | |
| | | |
| | | |
| | | |
| | | |
| total | | 20 |

comments/observations:

① plot # 2, 3 on opposite vegetated bank

② photo 103PL

**EMCON**

PLOT SAMPLING DATA SHEET

Date: 7/18/96Time: 1620Personnel: D. Bierstine / D. TompkinsProject: Kimble 12588-001.000Location: ECWA 002Transect: KB1-6WBT

| plot number | species observed | percent cover |
|-------------|------------------|---------------|
| 1 | reed | 2 |
| | | |
| | | |
| | | |
| | | |
| total | | 2 |

| plot number | species observed | percent cover |
|-------------|------------------|---------------|
| 2 | reed | 41 |
| | | |
| | | |
| | | |
| | | |
| total | | 41 |

| plot number | species observed | percent cover |
|-------------|------------------|---------------|
| 3 | reed | 45 |
| | | |
| | | |
| | | |
| | | |
| total | | 45 |

comments/observations:

① plot # 2, 3 on opposite vegetated bank

② photos 104 PL
105 PL

**EMCON**

PLOT SAMPLING DATA SHEET

Date: 7/18/96

Time: _____

Personnel: D. Bierstine / D. TompkinsProject: KinBuc 1250B-001.000Location: ECWA DU2Transect: KB2 - 8WBT

| plot number | species observed | percent cover |
|-------------|------------------|---------------|
| 1 | reed | 65 |
| | | |
| | | |
| | | |
| | | |
| total | | 65 |

| plot number | species observed | percent cover |
|-------------|------------------|---------------|
| 2 | mud flat | |
| | | |
| | | |
| | | |
| | | |
| total | | 0 |

| plot number | species observed | percent cover |
|-------------|------------------|---------------|
| 3 | mud flat | |
| | | |
| | | |
| | | |
| | | |
| total | | 0 |

comments/observations:

① photos 106 PL
107 PL



EMCON

PLOT SAMPLING DATA SHEET

Date: 7/18/96
Time: 1540
Personnel: D. Birstine / D. Tompkins
Project: WinBac 12388-001.000
Location: ECWA 002
Transect: MB2-10WBT

| plot number | species observed | percent cover |
|-------------|------------------|---------------|
| 1 | reed | 25 |
| | | |
| | | |
| | | |
| | | |
| total | | 25 |

| plot number | species observed | percent cover |
|-------------|------------------|---------------|
| 2 | reed | 21 |
| | | |
| | | |
| | | |
| | | |
| total | | 21 |

| plot number | species observed | percent cover |
|-------------|------------------|---------------|
| 3 | duart spike rush | 21 |
| | | |
| | | |
| | | |
| | | |
| total | | 21 |

comments/observations:

① photo's 108 PL

**EMCON**

PLOT SAMPLING DATA SHEET

Date: 7/18/96Time: 1530Personnel: D. Bierstine / D. TompkinsProject: Kimber 12568-001.000Location: ECWA DUZTransect: KB2 - 12WBT

| plot number | species observed | percent cover |
|-------------|------------------|---------------|
| 1 | reed | 20 |
| | polygoum spp. | 1 |
| | | |
| | | |
| | | |
| total | | 20 |

| plot number | species observed | percent cover |
|-------------|------------------|---------------|
| 2 | dwarf spike rush | 25 |
| | on mud flat | |
| | | |
| | | |
| | | |
| total | | 25 |

| plot number | species observed | percent cover |
|-------------|------------------|---------------|
| 3 | dwarf spike rush | 21 |
| | on mud flat | |
| | | |
| | | |
| | | |
| total | | 21 |

comments/observations:

① photos 109 PL
110 PL

**EMCON**

PLOT SAMPLING DATA SHEET

Date: 7/18/96Time: 1805Personnel: D. Bierstine/D. TompkinsProject: WinBac 12508-001.000Location: ECWA DU2Transect: KB3-13ERT

| plot number | species observed | percent cover |
|-------------|---------------------|---------------|
| 1 | salt marsh fleabane | 15 |
| | reed | 25 |
| | dwarf spike rush | 25 |
| | salt hay grass | 15 |
| | salt marsh bulrush | 15 |
| total | | 50 |

| plot number | species observed | percent cover |
|-------------|---------------------|---------------|
| 2 | salt marsh fleabane | 25 |
| | salt marsh bulrush | 25 |
| | dwarf spike rush | 25 |
| | | |
| total | | 25 |

| plot number | species observed | percent cover |
|-------------|------------------|---------------|
| 3 | reed | 25 |
| | dwarf spike rush | 25 |
| | salt hay grass | 25 |
| | | |
| total | | 25 |

comments/observations:

① could not find KB3-14WBT, construction activities cover, plots at ERT

② photos KB3-111PL
112 PL

500512

**EMCON**

PLOT SAMPLING DATA SHEET

Date: 7/18/96Time: 1645Personnel: D. Biershine/D. TompkinsProject: Kimbria 12568-001.000Location: ECWA DU2Transect: MB3-16WBT

| plot number | species observed | percent cover |
|-------------|--------------------|---------------|
| 1 | dwarf spike rush | 61 |
| | salt marsh bulrush | 62 |
| | | |
| | | |
| | | |
| total | | 62 |

| plot number | species observed | percent cover |
|-------------|--------------------|---------------|
| 2 | dwarf spike rush | 61 |
| | salt marsh bulrush | 61 |
| | | |
| | | |
| | | |
| total | | 61 |

| plot number | species observed | percent cover |
|-------------|------------------|---------------|
| 3 | dwarf spike rush | 61 |
| | | |
| | | |
| | | |
| | | |
| total | | 61 |

comments/observations:

(1) couldn't find WBT, plots
at 113 PL

(2) photo 113 PL

**EMCON**

PLOT SAMPLING DATA SHEET

Date: 7/18/96Time: 1655Personnel: D. Bierstine / D. TompkinsProject: KinBac 12588-001.000Location: ECWA 002Transect: MB3-18WBT

| plot number | species observed | percent cover |
|-------------|---------------------|---------------|
| 1 | reed | 10 |
| | salt marsh fleahave | 21 |
| | polygonum spp. | 21 |
| | | |
| | | |
| total | | 10 |

| plot number | species observed | percent cover |
|-------------|------------------|---------------|
| 2 | mud flat | |
| | | |
| | | |
| | | |
| | | |
| total | | 0 |

| plot number | species observed | percent cover |
|-------------|------------------|---------------|
| 3 | mud flat | |
| | | |
| | | |
| | | |
| | | |
| total | | 0 |

comments/observations:

① 4 foot drop middle plot #1

② photos 114 PL
115 PL

500514

**EMCON**

PLOT SAMPLING DATA SHEET

Date: 7/18/96Time: 1705Personnel: D. Bierstine / D. TompkinsProject: WinBac 12500-001.000Location: ECMA DU2Transect: KB4-20WBT

| plot number | species observed | percent cover |
|-------------|---------------------|---------------|
| 1 | dwarf spike rush | 20 |
| | salt marsh fleabane | 10 |
| | reed | 10 |
| | marsh grass | 5 |
| | | |
| total | | 45 |

| plot number | species observed | percent cover |
|-------------|---------------------|---------------|
| 2 | dwarf spike rush | 50 |
| | salt marsh fleabane | 25 |
| | | |
| | | |
| | | |
| total | | 50 |

| plot number | species observed | percent cover |
|-------------|------------------|---------------|
| 3 | dwarf spike rush | 30 |
| | reed | 5 |
| | | |
| | | |
| | | |
| total | | 35 |

comments/observations:

Ⓢ photos 116 PL
117 PL

**EMCON**

PLOT SAMPLING DATA SHEET

Date: 7/18/96Time: 1715Personnel: D. B. Birstine / D. TompkinsProject: WinBlue 12508-001.000Location: ECWA DU2Transect: KB4-22WBT

| plot number | species observed | percent cover |
|-------------|------------------|---------------|
| 1 | reed | 20 |
| | | |
| | | |
| | | |
| | | |
| total | | 20 |

| plot number | species observed | percent cover |
|-------------|------------------|---------------|
| 2 | reed | 30 |
| | | |
| | | |
| | | |
| | | |
| total | | 30 |

| plot number | species observed | percent cover |
|-------------|------------------|---------------|
| 3 | reed | 30 |
| | marsh orch | 21 |
| | | |
| | | |
| | | |
| total | | 30 |

comments/observations:

① plots parallel to stake (channel)
#1 is up stream

② steep drop to channel

③ photos 118 PL

**EMCON**

PLOT SAMPLING DATA SHEET

Date: 7/18/96Time: 1725Personnel: D. Bierstine / D. TompkinsProject: WinBox 1250B-001.000Location: ECWA DU2Transect: KB4-27 WBT

| plot number | species observed | percent cover |
|-------------|------------------|---------------|
| 1 | mud flat | 0 |
| | | |
| | | |
| | | |
| | | |
| | | |
| total | | 0 |

| plot number | species observed | percent cover |
|-------------|------------------|---------------|
| 2 | mud flat | 0 |
| | | |
| | | |
| | | |
| | | |
| | | |
| total | | 0 |

| plot number | species observed | percent cover |
|-------------|------------------|---------------|
| 3 | dwarf spike rush | 21 |
| | reed | 21 |
| | | |
| | | |
| | | |
| | | |
| total | | 41 |

comments/observations:

① plots parallel to stake (channel)
#1 is upstream

② steep drop to channel

③ photos 119 PL
120 PL

**EMCON**

PLOT SAMPLING DATA SHEET

Date: 7/18/96Time: 1775Personnel: D. Biershine/D. TompkinsProject: Kimbuc 12568-001.000Location: ECWA DU2Transect: KBS-26WBT

| plot number | species observed | percent cover |
|-------------|------------------|---------------|
| 1 | dwarf spike rush | 21 |
| | reed | 21 |
| | | |
| | | |
| | | |
| total | | 21 |

| plot number | species observed | percent cover |
|-------------|------------------|---------------|
| 2 | dwarf spike rush | 10 |
| | | |
| | | |
| | | |
| | | |
| total | | 10 |

| plot number | species observed | percent cover |
|-------------|------------------|---------------|
| 3 | mud flat | 0 |
| | | |
| | | |
| | | |
| | | |
| total | | 0 |

comments/observations:

① photo 121 PL
122 PL

**EMCON**

PLOT SAMPLING DATA SHEET

Date: 7/18/96Time: 1745Personnel: D. Bierstine / D. TompkinsProject: Kimberly 12568-001.000Location: ECWA DU2Transect: KB5-2BWB

| plot number | species observed | percent cover |
|-------------|------------------|---------------|
| 1 | reed | 65 |
| | | |
| | | |
| | | |
| | | |
| | | |
| total | | 65 |

| plot number | species observed | percent cover |
|-------------|------------------|---------------|
| 2 | mud flat | |
| | | |
| | | |
| | | |
| | | |
| | | |
| total | | 0 |

| plot number | species observed | percent cover |
|-------------|------------------|---------------|
| 3 | mud flat | |
| | | |
| | | |
| | | |
| | | |
| | | |
| total | | 0 |

comments/observations:

① photos 12 & PL

500519

**EMCON**

PLOT SAMPLING DATA SHEET

Date: 7/18/96
Time: 1755
Personnel: D. Bierstine/D. Tompkins
Project: Kimbic 12568-001.000
Location: ECWA DUZ
Transect: MBS-30WBT

| plot number | species observed | percent cover |
|-------------|---------------------|---------------|
| 1 | salt hay grass | 25 |
| | reed | 25 |
| | dwarf spike rush | 21 |
| | salt marsh fleabane | 21 |
| | | |
| total | | 30 |

| plot number | species observed | percent cover |
|-------------|------------------|---------------|
| 2 | dwarf spike rush | 21 |
| | reed | 21 |
| | | |
| | | |
| | | |
| total | | 21 |

| plot number | species observed | percent cover |
|-------------|------------------|---------------|
| 3 | dwarf spike rush | 21 |
| | reed | 21 |
| | | |
| | | |
| | | |
| total | | 21 |

comments/observations:

Q photos 124 PL
125 PL

ATTACHMENT G-2
SITE PHOTOGRAPHS

500521



Photo taken at KB1-101PL



Zone 1: Photo taken at KB1-102PL



Zone 1: Photo taken at KB1-103PL



Zone 1: Photo taken at KB1-104PL



Zone 1: Photo taken at KB1-105PL



Photo taken at KB2-106PL



Zone 2: Photo taken at KB2-107PL

500525



Zone 2: Photo taken at KB2-108PL



Zone 2: Photo taken at KB2-109PL



Photo taken at KB2-110PL



Photo taken at KB3-111PL



Zone 3: Photo taken at KB3-112PL



Zone 3: Photo taken at KB3-113PL



Zone 3: Photo taken at KB3-114PL



Photo taken at KB3-115PL



Photo taken at KB4-116PL



Zone 4: Photo taken at KB4-117PL



Zone 4: Photo taken at KB4-118PL



Zone 4: Photo taken at KB4-119PL

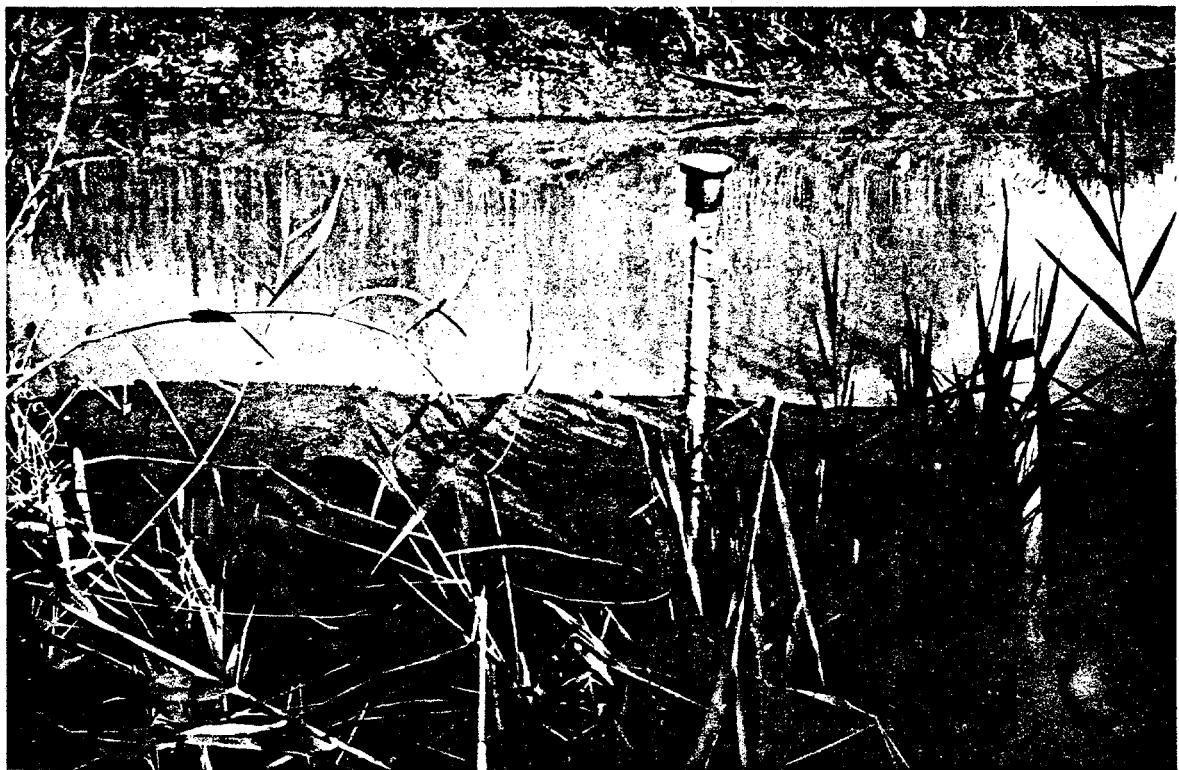


Photo taken at KB4-120PL

500533

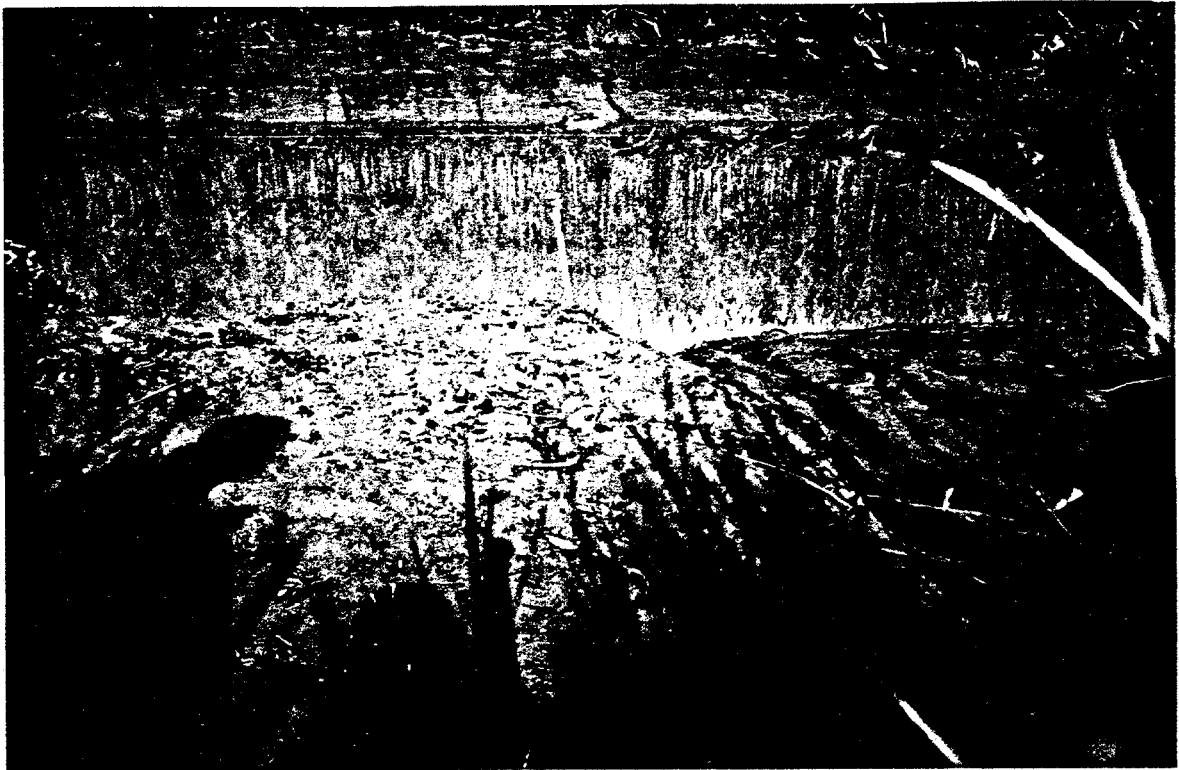


Photo taken at KB5-121PL



Zone 5: Photo taken at KB5-122PL

500534



Zone 5: Photo taken at KB5-123PL



Zone 5: Photo taken at KB5-124PL

500535



Photo taken at KB5-125PL

500536

ATTACHMENT G-3

FIELD MEMO

500537

MEMORANDUM

TO: File DATE: August 16, 1996
PROJECT: 12568-001.000
FROM: David B. Tompkins and Ron Bierstine
RE: Kin-Buc OU2 Wetland Monitoring - ECMA Wildlife Observations

During the July 1996 site visit to the OU2 Area of Kin-Buc Landfill (Edmunds Creek Mack Area, ECMA), a variety of wildlife species were noted utilizing the ECMA. These species included the following:

| Species | Scientific Name | Habitat Type |
|-----------------------|----------------------------------|--------------|
| Killdeer | <u>Charadrius vociferus</u> | 1,5 |
| Mourning Doves | <u>Zenaida macroura</u> | 5 |
| Red Wing Blackbirds | <u>Agelaius phoeniceus</u> | 4,5 |
| Cardinal | <u>Cardinalis cardinalis</u> | 4 |
| Starlings | <u>Sturnus vulgaris</u> | 5 |
| Song Sparrow | <u>Melospiza melodia</u> | 4 |
| American Goldfinches | <u>Carduelis tristis</u> | 3,4 |
| Rough Winged Swallows | <u>Stelzidopteyx serripennis</u> | 3 |
| Snowy Egret | <u>Leucophoyx thala</u> | 5 |
| Fiddler crabs | <u>Uca spp.</u> | 1 |
| Mummichug | <u>Fundulus heteroclitus</u> | 2 |
| Muskrat | <u>Ondatra zibethicus</u> | 1 |
| Mallard | <u>Anas platyrhynchos</u> | 5 |
| Sanderlings | <u>Crocethia alba</u> | 1 |

Habitat Types 1 = Mudflats, 2 = Waterways
3 = Flyover, 4 = Phragmites stands
5 = Non-Phragmites, vegetated area

Plant species noted in the ECMA included the following:

| | |
|---------------------|-------------------------------|
| Marsh Orach | <u>Atriplex patula</u> |
| Salt Marsh Fleabane | <u>Pluchea purpurascens</u> |
| Lady's Thumb | <u>Polygonum persicaria</u> |
| Salt Reed Grass | <u>Spartina cynosceroides</u> |
| Dwarf Spike Rush | <u>Eleocharis parvula</u> |
| Black Grass | <u>Juncus gerardii</u> |
| Salt Marsh Bulrush | <u>Scirpus robustus</u> |
| Common Three Square | <u>Scirpus americanus</u> |
| Blue flag | <u>Iris versicolor</u> |
| Salt Hay Grass | <u>Spartina patens</u> |
| Salt Grass | <u>Distichlis spicata</u> |